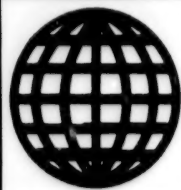


JPRS-EST-94-008

26 April 1994



**FOREIGN
BROADCAST
INFORMATION
SERVICE**

JPRS Report

Science & Technology

***Europe/International
Economic Competitiveness***

Science & Technology

Europe/International

Economic Competitiveness

JPRS-EST-94-008

CONTENTS

26 April 1994

WEST EUROPE

SCIENCE & TECHNOLOGY POLICY

Germany's Chances in High Tech Industries Viewed [U. Bernhard, W. Gillmann, et al.; Duesseldorf HANDELSBLATT, 31 Dec 93]	1
Germany: More Economical Research Through Outsourcing Called Possible [M. Eyett, J. Thietke interview; Stuttgart BILD DER WISSENSCHAFT, Feb 94]	3
FRG Research Minister on Budget, Subsidies, Eastern Germany, Nuclear Research [P. Krueger interview; Munich SUEDEDEUTSCHE ZEITUNG, 3 Feb 94]	5
France: Government Report Launches Debate on National S&T Policy [Paris LE MONDE, 3 Feb 94]	7
German Research Minister on Strengths, Weaknesses in High Tech Industries [P. Krueger interview; Duesseldorf WIRTSCHAFTSWOCHE, 14 Jan 94]	9
German Space Agency Announces 1994 Program [Paris AFP SCIENCES, 17 Feb 94 p 12]	10
Germany: 900-Million DM Approved for JESSI [Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT, 2 Mar 94]	10
Germany Creates Research Council [Paris AFP SCIENCES, 3 Mar 94]	11
Germany: Research Minister Hopes To Pass 20 EU Programs [Munich SUEDEDEUTSCHE ZEITUNG, 30 Mar 94]	11
European Commission Technology Transfer Director Assesses Programs [Dr. A.S. Strub interview; Brussels INNOVATION & TECHNOLOGY TRANSFER, Feb 94]	12
France: French Participation in STRIDE Program Reviewed [Paris ELECTRONIQUE INTERNATIONALE HEBDO, 3 Mar 94]	13
Germany: Lower Saxony Minister Opposes Transrapid Train Route [P. Fischer interview; Hamburg DIE WOCHE, 10 Mar 94]	13
German Government To Accelerate Transrapid Project [R. Schulz; Bonn DIE WELT, 17 Feb 94]	14
EC Allows Extension of Special Measures for Industrial Research in Eastern Germany [Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN, 14 Jan 94]	14
Netherlands: Strong Financial Support for Biotechnology Research [Rijswijk BIONIEUWS, 29 Jan 94]	15
Germany: Social Democratic Party Proposes R&D Priorities for 1994 [Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN, 27 Dec 93]	16
Germany: Biotech Jurisdiction To Be Reorganized [Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN, 27 Dec 93]	17
France: No Privatization for Aerospatiale Until 1995 [Paris LE QUOTIDIEN DE PARIS, 1 Mar 94]	17
EU S&T Research Committee Backs East-West Joint Research [Brussels EUROTECH FORUM JOURNAL, Feb 94]	18
EC Auditors Review ESPRIT Research Program [Brussels EUROTECH FORUM JOURNAL, Feb 94]	18
EC Auditors Review ESPRIT Research Program	19
European Molecular Biology Laboratory in Trouble [H. C. Cremers; Rijswijk BIONIEUWS, 29 Jan 94]	21

CORPORATE ALLIANCES

France: Northern Telecom, Matra Alliance Developments [Paris 01 Informatique, 19 Feb 93]	22
U.S.-Italian Cooperation in Building HT Superconducting Cables [unattributed; Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT, 17 Jan 94]	22

Germany: Bonn Leads Research in High-Efficiency Diode Lasers [unattributed; Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT, 19 Jan 94]	23
France: Alcatel Alsthom To Buy 17 Percent of Framatome [Paris LE MONDE, 15 Feb 94]	23
Daimler Benz's Aim To Obtain Majority Shares in CGS Rumored [Paris LE MONDE, 21 Feb 94]	24
Siemens-IBM-Toshiba Cooperation in 64-Mbit Chip Development [Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT, 2 Mar 94]	24
Rhone-Poulenc, SNIA Merge Polyamide Activity [J. Mattei; Paris L'USINE NOUVELLE, 3 Mar 94]	24
Co-Chairmen Appointed for French-German Telecom Joint Venture [Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE, 14 Feb 94]	25
UK, Germany: Rolls Royce, MTU Form Research Joint Venture [Brussels INNOVATION & TECHNOLOGY TRANSFER, Feb 94]	25
France: Dassault Buys Controlling Interest in Military Circuit Firm [Paris LA LETTRE DU GIFAS, 20 Jan 94]	27
France: Aerospatiale, SAFT Merger for Thermal Batteries [Paris LA TRIBUNE DESFOSES, 1 Mar 94]	27

CORPORATE STRATEGIES

France: Aerospatiale Receives Two-Billion-Franc State Aid [Paris LE MONDE, 4 Feb 94]	27
French Auto Makers Target Non-European Markets [Alain-Gabriel Verdevoye; Paris L'USINE NOUVELLE, 27 Jan 94]	28
Netherlands: Fokker Reduces Production by 20 Percent [C. Chartier; Paris LE MONDE, 16 Feb 94]	29
France: CEA-Industrie Divests Itself of Partnerships [C. Monnot; Paris LE MONDE, 16 Feb 94]	30
Bull's CEO Sees Privatization Process Starting in 1994 [C. Monnot; Paris LE MONDE, 19 Feb 94]	30
France: Renault Privatization Considered [Paris LE MONDE, 21 Feb 94]	31
Germany: Struggling DASA Pins Hopes on New Sales, Military Transport Program [W. Schmitz; Duesseldorf HANDELSBLATT, 28 Feb 94]	31
France: Alcatel Restructures Radio, Space, Defense Activities [Chichester ITI INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE, 21 Feb 94] ..	32
France: Dassault 1993 Figures Show Return to Profitability [Paris LA LETTRE DU GIFAS, 10 Feb 94]	33
France: SGS-Thomson Number Two Looks Ahead With Confidence [SGS-Thomson interview; ELECTRONIQUE INTERNATIONAL HEBDO, 17 Feb 94]	33
France: CELERG Becomes Europe's Largest Missile Motor Manufacturer [Paris LA LETTRE DU GIFAS, 27 Jan 94]	34
Germany: DASA Works Council Presents Plan To Avoid Staff Layoffs [Munich SUEDEDEUTSCHE ZEITUNG, 5-6 Feb 94]	34
Dutch Biotech Company Reorganizes R&D [Rijswijk BIONIEUWS, 15 Jan 94]	35

EUROPE-ASIA RELATIONS

UK: Honda Announces Complete Withdrawal From Rover [Paris LE MONDE, 22 Feb 94]	36
--	----

SCIENCE & TECHNOLOGY POLICY

Germany's Chances in High Tech Industries Viewed

94WS0180a Duesseldorf *HANDELSBLATT* in German
31 Dec 93 p 34

[Article with contributions by Ursula Bernhard, Wolfgang Gillmann, Siegfried Grass, Josef Hess, Siegfried Nagel, Georg Weishaupt: "Even the 100-Year-Old Automobile Still Subject to Technical Improvements"]

[TEXT] With the amendment of the genetic engineering law, representatives of the chemical industry believe that Germany as a business location will once again become attractive to researchers in genetic engineering, a field that represents one of the most dynamic tools for innovation. As a result of the reduced licensing and registration periods as well as the simplification of these procedures, German scientists will finally be able to reestablish contact with world-wide developments in this field. Professor Wolfgang Hilger, chairman of the board of Hoechst AG, has been a tireless advocate of genetic engineering over the past several years. He believes that its importance to industrial development is at least as great as that of microelectronics.

As a key technology, genetic engineering stimulates and influences many fields. It is indispensable in the struggle against disease, from research into its causes all the way to the treatment of patients. Agricultural scientists have great expectations of developing new varieties of plants that will not only produce higher yields, but will also make it possible to use more ecologically benign methods of crop and harvest protection. Biotechnical methods could make important contributions to resource and energy conservation. Genetic engineering could also lead to important advances in environmental technology, concerning the removal of wastes or contaminants in the soil, for example.

Whereas outside of Germany, particularly in the United States, research and its industrial application has progressed rapidly, Germany has almost inevitably fallen behind. The primary reason for this has been the movement of research efforts, young researchers, and even many firms out of Germany. It is unlikely that the production and research resources now located abroad will return, but at least Germany will be once again be on the list of potential locations for upcoming projects.

No other market is currently generating quite as much commotion as is the telecommunications market. With the ongoing breakup of state monopolies, more and more fields in Germany being opened to competition. For example, private businesses such as Mannesmann Mobilfunk and E-Plus have established their own mobile radio telephone networks. More and more private investors are also competing with the state-owned enterprise Telekom in the establishment and operation of satellite and, in the future, terrestrial data networks.

And this is not all. Even the state telephone monopoly is being increasingly eroded. Concerns such as Vebe, RWE, or Viag are joining with other companies to build extensive communications networks. They and other large enterprises use these networks for internal telephone traffic as well as for remote transmission of images and other data. They are preparing for 1 January 1998, when the telephone monopoly will be dissolved and they will apply for licensing as private telephone networks.

The reactions of the German communications firms to the opening of the market are mixed. On the one hand, new fields such as the mobile telephone market are opening up to them. On the other hand, foreign competitors are champing at the bit, eager to use their specialized know-how and more advantageous price/service ratio to snatch contracts away from German manufacturers. However, it is the German companies that profit the most from the enormous investments (approximately 60 billion German marks [DM]) made by Telekom in the new laender.

Information technology (hardware and software) and communications technology are drawing closer together. An information system should not only streamline operations, but also inform, in the original sense of the word. Data is exchanged on all levels. Increased cabling as well as the GSM (Global System for Mobile Communications) telephone networks will make it possible to transmit every piece of information to any location. Stimulus will also come from entertainment electronics—multimedia is the watchword here. Traffic control, metrology, control systems engineering, education, medical electronics—researchers have plenty of ideas.

If the computer industry is still struggling with tremendous difficulties, it is primarily because it has not yet learned how to translate its many good ideas into marketable products. In their understandable enthusiasm for what is technically feasible, retailers and developers ignore the real needs of the users.

It is essential that the shift to 32-bit technology and significantly more powerful microprocessors result in genuinely new uses. The consumer will be happy to see prices continue to be driven lower by the entrance of alternatives such as those offered by AMD or IBM/Motorola into the PC (personal computer) market, which is still dominated by the intel-processors. Then it is up to the software developer to put life into this fascinating and affordable technology.

Even in the most devastating structural crisis, such as that in which the relatively young data-processing industry currently finds itself, companies that have a clear strategy and focus their goods and services on a well-defined market do well. It is the large traditional data-processing concerns, which have a particularly hard time adapting to new market conditions, that are currently struggling with heavy losses. The industry is entering a new era of integrated computer and communications products. It is predicted that by the year 2000

the number of radio data transmitters in use alone will exceed 20 million. Radio data transmission makes possible such operations as the wireless exchange of data and information via portable palmtop, notebook, and laptop computers.

The expected rise in the world's population and the rapid economic growth in Southeast Asia will bring with it a sharp increase in energy consumption over the next 30 years; the World Energy Conference predicts an increase of 52 percent. The demand for power plants will increase dramatically. The Lesser Developed Countries (LDCs) need new power plants, while the industrialized countries and eastern Europe primarily need to replace outdated facilities. Experts predict an annual new building capacity of 95,000 megawatts worldwide over the next 10 years. This translates to contracts for approximately 300 new power plants, for which major power plant construction firms such as Siemens, ABB, GEC Alsthom, General Electric, and Matsushita will compete.

Even should the construction of new atomic power plants continue to be blocked, power plant construction will continue to be a growth sector. Conventional power plants have improved significantly over the past few years in terms of technology. The tapping of new gas fields combined with improvements in the efficiency of the gas turbines has given this field a tremendous boost. The double use of the combustion heat in "Gas and Steam Turbine Power Plants" (the GUD technique), also called combination power plants, has made it possible to achieve record efficiencies of nearly 60 percent. When combined with a heat coupling, efficiencies of 90 percent are within reach. This increases the earning power of modern power plants dramatically.

Nonetheless, it is price and low-cost financing that are the primary focus of worldwide competition. In addition, local manufacturing is being demanded, causing the major concerns to increasingly engage in joint ventures in the LDCs or Eastern Europe in order to stay in the market.

All the industrialized countries are promoting the key technology of material development. This is because improvements and innovations in materials can lead to better or more competitive products. Many products on the world market have become more durable as a result of such improvements, including automobiles, computers, communications and entertainment electronics, and even artificial organs and dentures.

German industry is still a leader in materials research and development (R&D). However, experts surveyed for the new Federal Ministry of Research and Technology (BMFT) Delphi Study rank Germany third, behind the United States and Japan—but still by no means out of the race. The consulting firm Arthur D. Little, which was contracted by the BMFT to evaluate its materials research program, assured the BMFT that the research fields into which it has channeled approximately DM2

billion since 1985 have been those that will enable Germany to maintain its leading position.

One of the goals recommended by the study—in addition to higher technological and industrial productivity—concerns materials research. This goal is the more careful consideration of long-term ecological consequences. In the past few decades, materials researchers have considered their primary job to be the development of materials that meet their requirements both reliably and as cheaply as possible.

Now, however, the effect that a material has on man and his environment are being taken into greater consideration, both with regard to manufacturing and to processing. This is due in part to legislation such as product liability laws, emission standards, waste disposal laws, and other regulations. The disposal, whether monolithically or as a compound, of a material that can no longer function as a product should, if at all possible, generate a new product. This is the ideal championed by proponents of a consistent recycling program.

Cooperation between the state and parliament will result in continued and even more direct intervention where materials are concerned. A carbon dioxide or energy consumption surcharge—regardless of its final form—and a heat utilization regulation will not only penalize plants that must be licensed for their emissions, but, via the resulting higher prices, will also indirectly affect the materials market mechanisms. The adoption by the state of product-energy indicators—which are not yet being publicly discussed—would have a tremendous influence on which materials are available.

Even the automobile, which has been around for over 100 years, is subject to improvement. Since World War II, there have been many innovations that have genuinely benefited the consumer. Currently under development are an anti-theft device which operates on the redundancy principle, a driver- and passenger-side airbag, and an airbag for side impact protection. These useful developments are at first available only in top-of-the-line models, but are increasingly incorporated in the more economical models. In the case of the "active chassis," which permits even the rear wheels to be steered within a limited radius, engineers and marketing experts are not yet in agreement as to whether the cost-benefit ratio is acceptable.

For the future, the automobile industry is adjusting to the notion that both the government and the public will demand lower carbon dioxide emissions. However, this is only possible through a corresponding decline in consumption. Consequently, automobile manufacturers are presently leaning towards smaller automobiles and new, more efficient, engines such as the VW Diesel TDI (*turbo direct injection*) with direct injection. The three liters per 100 kilometers average consumption rate is within reach.

At the same time, the industry is adjusting to requirements such as those of California, which within a few

years will require a certain percentage of newly licensed vehicles to consist of cars with 0 percent emissions. This is only possible with electric automobiles. Despite the new developments in batteries, which have made it possible for batteries to hold as much as four times the charge held by conventional lead batteries, pure electric vehicles are still hampered by their limited range. Furthermore, they are dependent upon recharging stations. Consequently, at the very best they are suitable for those downtown areas that will soon be off limits to gas- or diesel-powered vehicles. A possible solution to this problem is offered by vehicles with a hybrid drive, which would use an electric engine within city limits and a combustion engine outside of the city, whereby use of the combustion engine also recharges the electric engine.

There are also promising developments—by Mercedes and BMW, for example—that make it possible to use hydrogen gas produced from water via electrolysis as a fuel. Finally, there are devices to aid the driver in finding and reaching his destination. This can be accomplished either with the help of a city map loaded in an on-board computer or via a satellite link.

Germany: More Economical Research Through Outsourcing Called Possible

94WS0210A Stuttgart BILD DER WISSENSCHAFT
in German Feb 94 pp 90-91

[Interview with Michael Eyett and Jorg Thietke by Wolfgang Hess: "Lean Research follows Lean Production"]

[Text]

Contract Research as an Entrepreneurial Chance. Less money for research and development does not automatically dictate a step backward for a company. Consultants of Prognos AG see in outsourcing a chance to become more successful by way of a decreasing trend in costs.

Michael Eyett is a physicist with a PhD. He was the technology consultant at the VDI [Association of German Engineers] Technology Center in Duesseldorf. He has been a project manager for Prognos AG in Basle since 1991.

Jorg Thietke is a chemist with a PhD. He also worked at the VDI Technology Center in Duesseldorf before he began as a project manager at Prognos Ag in 1991.

[Hess] German industry spends too little money for research and development. Do you believe this, Dr. Thietke?

[Thietke] I don't buy that lock, stock and barrel. The economy spent just under 56 billion marks for research and development—R&D for short—in 1992. This continues to be a large amount. However, in contrast to earlier, the competitive pressure has changed and thus

the pressure on the costs for research and development. Results that can be more quickly converted are expected today.

[Hess] Consequently, the size of R&D outlays may not be used as the only indicator to measure the economic significance of research.

[Eyett] The effective and efficient acquisition of technologies for practical use is much more important.

[Hess] Have German companies become too complacent?

[Eyett] We find repeatedly that the greatest source of inefficiency in the area of research and development is setting hazy goals. Technology strategies should be matched to the company strategy. For example, take a sensor manufacturer who wants to offer his products for sale at the lowest price. The R&D efforts of this company must consequently concentrate on shorter turn-around times, a lower reject rate, and higher reliability. Too great a fixation by R&D on the further development of product features misses this business strategy.

[Hess] Are you saying that in industry often the wrong thing is being researched or developed?

[Eyett] In many companies, this is unfortunately correct.

[Hess] Can you be somewhat more specific?

[Eyett] I do not know of any empirical data. I believe, however, that more than half the companies suffer from the situation that the R&D department is not working in accord with the company goals.

[Hess] Does this mean that even industrial researchers are sitting in an ivory tower?

[Thietke] I think so. Meanwhile, many companies have recognized this problem. This is one reason why R&D is being decentralized more frequently and organized as a profit center. Such a profit center must finance itself by getting contracts from the operating sectors.

[Hess] Prognos AG has recently been advocating the outsourcing of research and development. What do you understand by this?

[Thietke] On the one hand, a company can do research and development alone. On the other, it is possible to acquire technologies under license. However, this only works if a developed technology is also available on the market. If this is not so, there is a third option known as outsourcing. This means getting the technology by awarding R&D contracts to third parties. Ideally, this allows access to external know-how permitting a quicker, less expensive and lower risk development than would have been possible within the company.

In production, outsourcing is already practiced extensively by shifting component manufacture onto suppliers

to an ever increasing degree. After reducing the manufacturing depth, optimization of the R&D depth is the next step. Lean research and development follow lean production.

[Hess] To make progress with the development of a product, you need an intensive insight into the problems accompanying this. A company allowing insight into their blueprints opens the way for industrial espionage.

[Eyett] In those segments that a company counts among its technological core areas, thus to its main body of knowledge, the company must of course pay attention that not too much of the know-how leaves. This is especially the case for know-how that a company is counting on for its future competitiveness.

[Hess] Consequently, is outsourcing only considered if a product development is being started from scratch and thus no know-how can be lost?

[Thietke] That is one area. However, even outside the technology core areas—if the object is to round out the main body of knowledge of a company—outsourcing can be worthwhile from a cost perspective in the core business. If the core area of a company lies in the development of complex systems, individual components may be developed somewhere else without the company having to fear that the contractor will turn around and work itself up to become a direct competitor.

[Hess] Despite the advantages that you have pointed out, industry is exploring the path of outsourcing only cautiously.

[Eyett] That is not so. Of the almost 56 billion that German industry spent for R&D in 1992, six billion flowed to external institutes or companies. I can confirm with numbers that outsourcing in the economy is becoming more popular. In the past 15 years, the total R&D outlay by German industry has tripled. However, the outlay for external R&D increased tenfold in the same time.

[Hess] And how will Prognos AG earn money by outsourcing?

[Eyett] The matter of concern for us is strategic consulting. In this framework, we can support our customers in deciding what they should outsource and what not for reasons of company and technology strategy. We can also investigate the market to find out which third-party vendors can be brought on board at a reasonable cost for research and development projects.

[Hess] Please show us with an example how your outsourcing approach looks.

[Eyett] Let us take the following case. A company is a leader in the market of special optical systems and, with a lower priority, active in optical components and measuring technology. For producing the systems, both in-house developed components such as interference mirrors and coated precision mirrors are necessary as is

sophisticated measuring technology. The decisive feature, however, is the precise knowledge of the system properties and of the precision mechanics.

Our analysis showed that here it would be best to turn the component development over to a supplier, thus to outsource. The analysis also showed that the capacities of the existing and absolutely necessary holographic and interferometry measurement devices could be better exploited by finding contracts from aerospace companies. Here, we speak of insourcing. The company could save costs by this optimized mix.

[Hess] Just how good externally developed products are can be proven by means of quality control. However, how do you check the intellectual performance of external researchers?

[Thietke] In the example described, a project close to development was involved. The quality of this project could be checked simply because the system vendor continued to have the optical measuring technology in-house. For outsourcing close to development, this is more difficult. The basis for the joint venture can then usually be service contracts. In such cases, project management and R&D controlling similar to that used for internal central departments must be used. Most of such central departments are run as cost centers.

[Hess] Which branches are particularly suited to R&D outsourcing?

[Eyett] The stronger a company is in the sector of high technology, the more R&D outsourcing is used. Electro-technology, electronics and the automotive industry make particularly extensive use of this potential. In Japan, for example, half the development cost for a new automobile is borne by the suppliers. In Europe, on the other hand, the portion provided by suppliers is less than one third.

[Hess] How is that?

[Eyett] The integration between research institutes and industry on the one hand and suppliers and consumers on the other is generally closer in Japan than here. Also, the interest in achieving a lofty goal together is very pronounced in Japan. In addition, the companies exert enormous pressure on the supplier.

[Hess] German industry is currently spending more than 50 billion marks on research and development. How many billion marks could, in your opinion, be used to better effect if industry would make consistent use of R&D outsourcing?

[Eyett] That depends greatly on the individual company. For a company that previously made no use at all of external technology sources, the potential for savings in the R&D area is more than 20 percent. To estimate this potential savings over all branches using a non-representative basis of individual cases would not be reputable. You will not get a number on that topic from us.

**FRG Research Minister on Budget, Subsidies,
Eastern Germany, Nuclear Research**

94WS0221A Munich SUEDEUTSCHE ZEITUNG
in German 3 Feb 94 p 10

[Interview with German Federal Minister for Research and Technology Paul Krueger by Martin Urban and Juegen Busche; place and date not given: "For me, research policy is not only a policy of subsidies."]

[TEXT] [Text below title quote] The CDU [Christian Democratic Union] politician credits Munich with being the site of Germany's most outstanding fusion research, but he also wants to place large-scale projects in the East.

[SZ—Sueddeutsche Zeitung] You did not get off scot-free from the last round of cutbacks; instead, you are now going to have to relinquish an additional 250 million marks from your tightly apportioned budget. How are you going to manage that without causing damage to German research?

[Krueger] For me, research policy is not only a policy of subsidies but involves much more. Its effectiveness cannot be secured just by money alone. The budget reduction in the Federal Ministry of Research and Technology will probably affect nearly all areas. In the area of personnel in the research installations, however, we will hardly be able to do any economizing, also because of the legal commitments in the 94th budget. That means that we will probably have to economize more sharply in the area of project funding, in the area of investments, in the area of materials and equipment in research facilities, and with international contributions.

[SZ] You wanted to save even more on space travel in any case than the Minister of Finance considers necessary.

[Krueger] The budget is not determined by the Federal Minister of Research alone but rather in the end by the Parliament. If it is up to me and my department, space travel will indeed share in the cut-backs.

[SZ] How does it look for fusion research? The decision on the W7X experiment, which the Institute for Plasma Physics is very interested in, still has to be made. Is the experiment going to be done, and if so, where?

[Krueger] I do believe that the W7X stellarator [experiment] will happen. That is, after all, a project which is currently being examined within the scope of the European fusion program and which, if necessary, could be sponsored via the EU. So I believe that the resources will be sufficient also for a medium-term realization of the W7X.

[SZ] Where?

[Krueger] Since we are planning to build a fusion site in Greifswald, Greifswald will probably be considered for this. We are trying over the long term to create an innovative landscape for research in Eastern Germany as

well. That also means putting some large-scale equipment in the new states and not always just adding still more [pieces of equipment to areas] which already have a lot.

[SZ] Does that mean that the Max Planck Institute for Plasma Physics has its future already behind it?

[Krueger] I do not look at it that way. Because outstanding work has been done here. Even if the stellarator research is moved to Greifswald, important large-scale equipment for fusion research would remain in Garching and would make preliminary work for the world-wide ITER project possible.

[SZ] What are the scientists there supposed to do if they do not get the new experiment? The large ITER test reactor is only a hope. Apart from the fact that the next fusion reactor, if it is operated with radioactive tritium, would have to be approved in accordance with the Atomic Energy Law—and according to the explanation of the SPG [Social Democratic Party of Germany], this would not receive majority approval in Germany.

[Krueger] We'll have to wait and see about that. I think that Munich is currently the most outstanding site of fusion research in Germany, that Greifswald could be a complement to Munich, possibly as part of the Munich institute; and the nuclear research center in Karlsruhe will continue to have a future.

[SZ] From what you are not saying, it follows that the Juelich nuclear research installation no longer has any future in fusion research.

[Krueger] It has not been finally decided yet what will happen with Juelich after the fusion experiments which are currently running are completed. So I am not able to say anything definitive either.

[SZ] What is your position on the new atom reactor project in Garching?

[Krueger] First of all, we need clear decisions in Bavaria in this regard. In addition, we have to see what financing shortages we already have now in the area of funding for university or college construction. A new research reactor would have to be financed very substantially through the Law to Promote College Construction. We have announced support for when that time comes of a firm investment cost subsidy of 160 million and an operating cost subsidy of 80 million marks. And if the project does become definite, we will make this sum available.

[SZ] In the face of criticism from the USA, how do you, as a politician at the federal level, assess the problem of proliferation via the highly enriched nuclear fuel which is supposed to be used in Garching?

[Krueger] There are no official statements on the part of the American government regarding this. But we should not underestimate the public discussion about it. The [German] government does not see any proliferation. All

of the nuclear fuel of the research reactor is completely subject to the security measures of the European Atomic Energy Community (EURATOM) and the International Atomic Energy Agency (IAEO). As soon as the FRM's concrete reality becomes apparent, we should try very quickly to reach a clarification of these questions with the American government.

[SZ] You want to shorten the road from basic research to production for the market. That leads among other things to [the situation] that large research facilities which are now suddenly supposed to being trying for marketability are in competition with the Fraunhofer Institutes, which have traditionally been there to carry out applied research.

[Krueger] I do not see direct competition here.

[SZ] It will be seen and spoken of that way on both sides.

[Krueger] We want to help those sections of the large research facilities which are already more oriented toward applications to be given work which is line with our strategy, which we recognize as significant for the future.

[SZ] Are you considering doing something to help foster independence for the generation of college graduates in, for example, the chemical industry, where there are almost no jobs to be found now?

[Krueger] We are thinking a great deal about how we can support the basic requirements for livelihood. There is a whole series of programs for this. Right now in the new states, where the deficit is the greatest, these special subsidies for technologies extend to supporting the start-up of technology-oriented businesses.

[SZ] Subsidies also through the FMRT [Federal Ministry of Research and Technology]?

[Krueger] Yes. Although I doubt that young graduates are in the position to already be starting businesses. What is important is that we in general take more graduates into businesses. We are currently giving intensive thought to possibly also creating new incentives in innovative areas in industry in order to be able to place good graduates of colleges and universities.

[SZ] How is your collaborative work with the Ministry of Education going?

[Krueger] Smoothly and well. Better coordination of the research facilities would be necessary, particularly the facilities on the so-called "blue list."

[SZ] Since, as you said at the beginning, you now necessarily have to limit project research, a whole series of small businesses which live off of projects in, for example, energy research for the Ministry of Research will either go under or substantially down-size and will in any case have to let people go.

[Krueger] Funding from the FMRT should in any case only be jump-start financing, not a long-term subsidy. I hope that through the many measures we are undertaking we will help industry work more closely with research facilities and also with business facilities which are active in research. I hope that we are more successful than we have been in the past.

[SZ] Would a change in the guidelines for granting funds be necessary in this regard?

[Krueger] I hope that industry comes to the position of giving away more contracts to third parties—that is, of using commissioned or contracted research more intensively. At this point only two percent of the total research expenditures of business and industry is used for contracts [for research] to third parties. That seems to me to be too little. Otherwise, it cannot be the case that the government, at least with the budget reductions, has to see to it that private research facilities are receiving project funding right along with public research facilities.

[SZ] On the other hand, it is surely important that we do not thoughtlessly risk the expert knowledge we have available. And what you are now allowing to fall apart will take a long time to rebuild in better times.

[Krueger] I can only spend the money that I have.

[SZ] Do you think that your demand that research expenditures be offset by taxes beginning in 1995 still has a chance, and how should the finance minister who is then in office balance that out?

[Krueger] We are working on creating a preferential system for research and development with regard to taxes. How this will look is currently being worked out among the Federal Ministry of Research and the other departments, particularly the Federal Ministry of Finance.

[SZ] Do you consider it possible to recoup from businesses which are now doing well financially thanks to government funding of research some of the money which the government gave them?

[Krueger] We are already doing that.

[SZ] Where?

[Krueger] The good businesses spread things out, since according to the funding requirements of the FMRT they have to grant licenses to competitors. The government joins in the revenue. By the way, we have the highest tax rates in the world.

[SZ] They affect the good and the bad.

[Krueger] I do not view [the idea which] you are addressing to be a very good solution now, because it is very difficult to prove in individual cases how large the

portion of the FMRT research subsidy was in concrete product developments. I think we should stay with our role as sponsor.

[SZ] It is often said about universities that students in Ph.D. programs must be increased, must be supported more. What is your view?

[Krueger] We still need a variety of measures regarding how we can do better at fostering future workers, including members of the elite. That, however, costs money.

[SZ] People have placed their hopes in the restructuring of the East German universities.

[Krueger] We created the innovation courses for East Germany. They are approved so far. Another matter is the funding program "Cooperation in Research" begun in September 1993. Among other things, this deals with the funding of research and development personnel transfers between businesses and research facilities done to maintain a kind of an intellectual transfer of technology. That is a very efficient form of technology transfer.

[SZ] Will you have to put the brakes on the Max Planck Society in their efforts to develop activities in the new states?

[Krueger] The Max Planck Society has our pledge to financially cover all measures which are tackled there. It is, however, to be feared that the building of new Max Planck Institutes will be more difficult to manage than the financing.

[SZ] Does that have something to do with the problems of the states?

[Krueger] It has first of all to do with the fact that it is difficult to summon qualified people to settle in the new states before general conditions are created which the scientists accept.

Interviewers were Martin Urban and Juergen Busche.

[Photo Caption] Minister Paul Krueger: "We are giving a great deal of thought to how we can support the basic requirements for livelihood."

France: Government Report Launches Debate on National S&T Policy

94WS0222A Paris LE MONDE in French 3 Feb 94
p 11

[Article entitled: "Francois Fillon Launches the National Debate on the Future of Research"; first paragraph is LE MONDE introduction]

[Text] The minister of higher education and research, Francois Fillon, made public a 60-page report on the broad goals of French research on Tuesday, 1 February. Sixty thousand copies of the document are expected to

circulate in research circles, kicking off the minister-initiated national discussion that will culminate in a great parliamentary debate in June.

In January, 1982, Jean-Pierre Chevenement, then minister of research and technology under the Mauroy government, inaugurated the "National Research and Technology Days." Twelve years later, Francois Fillon has borrowed the formula to "survey the state of French research" and "collectively define strategic priorities." The national research debate was announced last May and aims to "wipe the slate clean and redefine priorities." It was ultimately postponed until last fall, when a group of experts headed by atomic energy high commissioner Roger Dautray compiled a preliminary report.

The first draft of the expert report was written between 14 September and 3 December, 1993, and barely scratched the surface. Overly concerned about circumscribing the debate, its authors were careful not to make any final decisions or suggest priorities or strategies. The only exception was a series of remarks and questions on the prickly issue of higher education and research organizations, and how to reconcile cutting-edge research with mass university education.

Since then, various people involved in research have enriched the report with their thoughts, desires, and questions concerning universities, research organizations, big institutions (Academy, College of France, Parliamentary Office of Science and Technology), manufacturers, and trade unions.

Six regional symposia to be held between mid-February and mid-March in Marseille, Grenoble, Bordeaux, Strasbourg, Lille, and Le Mans will base their work sessions on the report, which features four main chapters:

—**Basic research.** In the opinion of the reporters, France, despite several weaknesses, "is active on most basic research fronts, and is well-positioned to compete internationally." But they emphasize the need to raise questions about how to "maintain research's vitality and dynamism."

Examples of such questions include how to combat the "persistent inadequacy of engineering sciences"; how to spur research professors and researchers to "take risks"; how to increase the ability of research organizations, whose resources are mostly allocated to "personnel and other fixed expenditures," to take initiatives; and how to keep budgets for big programs and equipment from adversely affecting small science. Regional symposia participants will try to answer those questions.

—**Science and society.** Aware that research often leads to "results that transform personal and collective life," the reporters believe "the scientific community cannot remain indifferent to the expectations or criticisms of citizens." Accordingly, they recommend more communication, through a broader inclusion of learned societies and Parliament in discussions. They also suggest that scientists listen more carefully and "pay

greater heed to human and social sciences, which, by shedding light on the factors that determine scientific and technical creativity and on society's demands, can bolster interaction [between laymen and researchers]."

- Research, technologies, and companies.** To no one's surprise, the report's findings here are "worrisome." French companies spend only 1.3 percent of GDP on research, against approximately 1.9 percent in competitor countries. The report stresses, for instance, that German industry conducts nearly twice as much research and development work as its French counterpart, and employs twice as many researchers. Moreover, although "the big state-led and -supported programs (in aeronautics, space, nuclear power, telecommunications, and so on) have scored many successes," their "effect is only decisive in their own industry" and "spills over very little into others."

Isn't it time, the reporters wonder, to question the relevance of objectives and the methods used to achieve them? Shouldn't S&T policy seek to revitalize the technological fabric of small and medium-size companies; inject a little science into traditional industries such as construction, public works, agriculture and food, etc.; and redefine research priorities for higher education and the big professional schools?

- Higher education and research organizations.** A significant amount of research, especially basic research, is conducted in establishments of higher education and specialized organizations. But in the opinion of the reporters, particularly Academy of Sciences president Jacques Friedel, higher education must adapt to future needs without delay.

Put another way, the reporters suggest that there may be a need to team up with regions, companies, and local government agencies to create short, accessible technology-training programs better suited to mass education. This would not be done at the expense of university research, whose level would be maintained through the development of centers of excellence. The reporters seem to favor such a shift, just as they appear open to the idea of more overlap between the research and teaching communities.

This contrasts with their December observation that "the notion floated by some of a future merging of the two professions would require an exhaustive study to assess its relevance and feasibility." The reporters tried to soften their remarks on the question this time around, for it is a sensitive one. The new document states that "without abandoning a system of research organizations that has proven its worth," we must "think about how we can incorporate that system into the university fabric."

NOMINATION: Jacques Jousot-Dubien as the vice-president of the Higher Council on Research and Technology. Higher education and research minister Francois Fillon installed the new Higher Council on Research and Technology (CSRT) on Tuesday, 1 February. The

research minister is the lawful president of this body, which elected 65-year-old Jacques Jousot-Dubien as vice-president. The CSRT was created in 1982 to advise the government on important science and technology choices, and consists of 40 members who sit for two-year terms. [Jacques Jousot-Dubien, born in Oran, Algeria on 12 April, 1928, specializes in photochemistry and lasers. He is a professor at the University of Bordeaux-I, director of the Wave/Matter Interaction Physics Laboratory of the Bordeaux National Advanced School of Chemistry and Physics, and an elected correspondent of the Academy of Sciences as of 1980. Jousot-Dubien was research director at the central administration of the National Education Ministry from 1986 to 1988.]

Footnotes 1. Plus a very short fifth chapter on regions, Europe, and the world.

French Minister Outlines S&T Information Program

94WS0224A Paris AFP SCIENCES in French
27 Jan 94 p 1

[Article: "Fillon Announces Measures To Improve Dissemination of Scientific Information"]

[Text] Paris - On 26 January, in a report at the council of ministers, The minister of higher education and research, Francois Fillon, submitted measures aimed at improving the dissemination of scientific and technical information.

Fillon pointed out: "New data bases will be created in sectors where French research excels, in strategic sectors and in areas where research underlies major impacts on industry."

The minister also reported the upcoming creation of a "high council for scientific and technical information that will recommend major guidelines" to be developed in respect to scientific and technical information. "A very large number of scientific and technical information scholarships will be allocated."

Following is the passage in the council of ministers' communiqué containing Fillon's report:

The dissemination of scientific and technical knowledge is a factor in economic development and job creation. Our national independence in this area, therefore, needs to be guaranteed. Such dissemination should also help propagate French language and science.

1) If need be, existing data bases will be improved and upgraded. New data bases will be created in areas where French research excels, in strategic sectors and in areas where research underlies major impacts on industry. The objective is to have data bases on a level that compares with the best data bases in the world.

French scientific journals will be given assistance to attribute an international dimension to their dissemination.

2) There will be improved accessing of information by researchers and firms. Techniques for the use of computer systems that make it possible to tap into data bases will be simplified. Encouragement will be provided for the use of high transfer rate data exchange systems that are being set up on an international scale.

3) A High Council for Scientific and Technical Information will recommend broad guidelines for action in this area. The role and missions of the Scientific and Technical Information Institute and the Agency for the Dissemination of Technological Information will be precisely defined. Contracts concluded by the government with research organizations and with establishments of higher learning will specify the latter's missions in respect to information.

Students will be better trained in research and use of scientific and technical data. A very large number of scientific and technical information scholarships will be allocated.

German Research Minister on Strengths, Weaknesses in High Tech Industries

94WS0227A Duesseldorf WIRTSCHAFTSWOCHEN
in German 14 Jan 94 p 73

[Interview with Research Minister Paul Krueger by Stefan Wichmann and Burkhard Boendel: "Firm Barriers"; date and place not given]

[Text]

—Minister, the number of German patents is dropping, fewer and fewer German researchers are winning the Nobel prize, business investments in research and development are shrinking—is there any way to stop Germany's descent to second-class technological status?

[Krueger] I doubt that we are on a descent. But we have problems with the economic climate which have a negative effect on the research climate in Germany. The economic setting and the state of the market are influencing the tempo of converting research results into successful products. We aren't weak at all in basic research. In gene technology or microelectronics, for example, we still have a high international standing.

—Then perhaps you are thinking of the fact that we are falling behind the U.S. and Japan, with virtually no chance of catching up?

[Krueger] No, the pinch only comes in converting knowledge into products and markets. That has to happen more rapidly. And a sometimes near-hysterical reaction to technical developments in this country is a stumbling block.

—Can you give examples?

[Krueger] Plenty of them. The high temperature reactor, where we were world leaders, was done in by a lack of

political acceptance. Or take the example of gene technology, where young researchers see no opportunities because of the long wait for approval and emigrate. Many things set the wrong mood, for instance when scientists working in health research are subjected to threats because they have to carry out experiments on animals in order to help human beings.

—But popular initiatives can't bear the whole blame for the crisis. Even in uncontroversial technologies the dynamics of innovation are weakening in this country.

[Krueger] That varies a great deal from one industry to another. Engineering, for example, is still innovative. In some ways even too innovative, almost too perfect. That drives up costs and weakens our competitiveness. Innovation at all costs is not good. We often make complicated things, but the Japanese usually make what is more saleable.

—How can that be changed?

[Krueger] What is needed is a closer link between basic research and industry. Maybe it would also be more efficient if more basic research were conducted within industry itself. Often the two sides no longer understand one another. In the last few years a real language barrier has arisen and it has to be overcome.

—You took over the idea of a strategic circle from your predecessor—a mini-MIDI or round of talks?

[Krueger] Neither one. I want to initiate a strategic dialog between research, industry and politics on two levels with differing goals. On the upper level is the strategic circle, where the concerns are research processes and across-the-board problems like acceptance, legal requirements, training the next generation, the tempo of innovation and the like.

—And the second level?

[Krueger] That is made up of several dialog circles in which the nature of future research and development trends will be discussed. They should come up with answers, for example to the question of what technologies and products are of basic significance for the future development of our society. These circles will be made up of new experts in each case. Only the basic structure will remain unchanged. Representatives of the economy, science and politics will share their experiences, enhanced by external studies and reports.

—Which research areas do you think most significant?

[Krueger] Germany cannot afford to neglect any key area. For example, we need to catch up in biotechnology and in almost all application areas of microelectronics. In information technology we have lost a lot of ground. I will pay particular attention to software development, where we can draw on our knowledge of systems.

—And you hope to achieve this with antiquated support mechanisms and structures?

[Krueger] We are already thinking of innovations. For one thing, we have already developed concrete ideas about tax incentives for research and development. We are discussing this with the finance minister at the moment. In the new Federal Laender we have set up a broad spectrum of programs which provide a basis for the existence of innovative mid-level companies.

German Space Agency Announces 1994 Program

94WS0250B Paris AFP SCIENCES in French
17 Feb 94 p 12

[Unsigned article: "Germany To Participate in 500 Space Projects in 1994"]

[Text] **Bonn**—Germany plans to participate in 500 space research projects throughout 1994 in a context of international cooperation along with its financial contribution to the ESA mission, the German Space Agency (DARA) announced on 16 February.

"These various projects have one point in common and that is that they are very interesting in terms of the development of high technologies," emphasized Mr. Jan-Baldem Mennicken, DARA director-general, during a press conference in Bonn.

According to Mr. Mennicken, out of the budget of DM1.6 billion allocated by the German Research Ministry, about 1.1 billion will be devoted to ESA projects, while the rest, about 500 million, will go to national programs and German research institutes.

In 1994, German space research will emphasize mobility (through the Ariane and Express programs), communications (TUBSAT-B), health (MIR-92E), safety, energy, and high-tech procedures, on the one hand, and observation of the Earth, the water, the climate, the atmosphere, and the planets (Galileo, Ulysses, Mars-94), on the other hand.

The two main projects to be launched will be the X-SAR Earth observation program, carried out together with Italy and the United States, and the Crista Spas climatological research mission endowed with DM40 million. The X-SAR ultra-sensitive radar "will not confine itself to observing the surface but will also measure the degree of humidity in the air," Mr. Heinz Stoewer, project manager, said in briefing the press. X-SAR will be tested on 7 April, and for a second time, on 18 August on board a shuttle.

The Crista Spas mission is intended to collect data on climate changes as well as on gases that are dangerous to the ozone layer over a period of 10 days ("as against 6 months for a conventional satellite"). It will be launched in October 1994 in connection with the flight of the American shuttle STS-66.

Here is another important project in which the Germans will participate: the Russian Mars-94 operation whose takeoff is scheduled for October from Baikonur; its

purpose is to take soil samples on the red planet in cooperation with the French, the Americans, and the Russians. Germany will make as important a contribution as will France with 14 experiments.

Furthermore, the ISAN mission, intended to put the finishing touches on integrated aerial navigation systems with satellite surveillance during all flight phases, "describes the joint effort by the enterprises and the universities," Mr. Stoewer noted.

Germany, he pointed out furthermore, will conduct discussions with the Americans, particularly to have German astronauts included in future shuttle missions. Besides, an ESA cosmonaut, undoubtedly the German Ulf Merbold, should participate in the sixth Russian-European Euro-Mir mission which will take off from Baikonur in September; it will include major German participation with 11 experiments in human physiology.

Germany: 900-Million DM Approved for JESSI

94WS0262B Frankfurt/Main FRANKFURTER
ZEITUNG/BLICK DURCH DIE WIRTSCHAFT
in German 02 Mar 94 p 8

["Krueger: Funding Earned Mostly by Microelectronics Systems"]

[Text] **BONN (dpa)**. It is now the opinion in Bonn that the European JESSI Program, which has been plagued by birth pangs, is finally on the right road to reinforcing the participating European industries against Japanese and American competition. In an interim report on the support program through 1996, the German Minister of Research, Paul Krueger, emphasized that Germany's strengths lie in specialized areas of microelectronics.

Chips alone do not create profits, but rather the systems in which they are used, Krueger argues. Owing to a good mixture of both large and medium-sized companies, Germany enjoys a high potential in system engineering. The concurrent development of systems and the chips used in them provides opportunities for Germany industry.

Among the particular strengths of German industry, Krueger named high-frequency analog technology, sensor development, and applications-specific memory chips. The Federal Republic is weak where solutions are sought in the market solely with available processors and applications programs.

Besides Germany, France, Italy, The Netherlands, Great Britain, and the European Research Cooperative Venture Eureka now participate in JESSI (the Joint European Submicron Silicon Initiative). Funding to the amount of DM900 million, of which half will be provided by industry and half by the various governments and Brussels, will be available to the 140 participating enterprises in 1994.

The Ministry of German Research will provide DM 104 million. The total volume of the world market for microelectronic components in the year 2000 is estimated to be at about DM250 billion. In 1980, it was about DM24 billion.

Krueger considers the anti-blocking system (ABS), mobile telephony, and digital radio transmission as examples of successful applications of microelectronic developments. Siemens's decision to establish a new microchip development and production capability in Dresden signals a new initiative for Germany and Europe.

The new 64-Mbit chip, which is being developed jointly with America's IBM, will be produced in Dresden. This superchip, which can store 6,000 DIN-A4 pages of text in an 11 x 18-mm area, is one of the original priority goals of the JESSI Program.

Germany Creates Research Council

94WS0272B Paris AFP SCIENCES in French
03 Mar 94 p 1

[Article: "Germany: Creation of Research Council"]

[Text] Bonn—The German Government decided on 24 February to create a Council on Research, Technology, and Innovation to be headed by Chancellor Helmut Kohl, chancellery spokesman Dieter Vogel has announced.

The council, which will bring together representatives from the research community, industry, trade unions, and the government, is expected to contribute to better cooperation between research and industry with the object of enhancing German competitiveness, according to Paul Krueger, minister for research, and Mr. Anton Pfeifer, state minister for the chancellery. It should begin its work sometime this spring.

The council, Mr. Pfeifer noted, will focus on facilitating improved dialogue between research institutes and economic operators on research policy objectives, identifying priorities, proposing research projects, and fostering stronger cooperation at the German, European, and global levels. To support increased cooperation, personnel exchanges between research institutes and economic operators will be expanded.

Germany: Research Minister Hopes To Pass 20 EU Programs

AU3103095094 Munich SUEDEDEUTSCHE ZEITUNG
in German 30 Mar 94 p 27

["free"-signed report: "Krueger Facing Difficult Negotiations on European Research Programs"]

[Text] Bonn—As chairman of the Council of Research Ministers of the European Union [EU] during the second half of the year, FRG Research Minister Paul Krueger (Christian Democratic Union) wants to pass, if possible,

all 20 programs of the EU's Fourth Research Framework Program. This involves approximately 24 billion German marks for 1994-98. However, it remains to be seen whether Krueger will achieve this goal. It is expected that the minister has to set priorities to ensure the smooth continuation of EU-financed projects with German participation, for instance in information technology. It is also expected that there will be differences of opinion on industrial policy.

Last week, the Mediation Committee, which consists of the 12 EU research ministers and 12 representatives of the European Parliament, agreed on the 1994-98 EU research budget. The Fourth Research Framework Program, which unites all research activities of the European Union, will allocate 12.3 billion ECU. In addition, in 1996 another 0.7 billion ECU can be approved, the use of which is to be made dependent on the economic situation.

After a formal confirmation of the results achieved in the Mediation Committee by the Council of Ministers and the parliament, the committee can now present the 20 specific programs, with which the framework program is to be implemented. According to the Research Ministry, 1.25 billion of the 12.3 billion ECU will go to Euratom (840 million ECU for fusion research, 414 million ECU for nuclear safety) and 9.4 billion ECU to the actual technical programs.

A total of 3.4 billion ECU are to be allocated to information and communications technology, followed by about 2 billion ECU for industrial technologies, which include material research, aviation research, and the fields of measuring and testing. In the program for non-nuclear energies, (about 1 billion ECU) 60 percent are to be used for renewable energies and 40 percent for research and development work for energy saving. Approximately 1 billion ECU are planned for environment, climate, and ocean research.

In the FRG Research Ministry it is assumed that, within the framework of the Program for Industrial Technologies, the committee will also suggest means to promote the automobile industry. This, however, will probably provoke a controversy over European industrial policy, because, in contrast to France or Italy, for instance, the FRG rejects specific promotion of the automobile industry or other industrial branches for reasons of order policy.

Still, in the ministry it is not expected that the automobile industry will get nothing at all. The Research Ministry also expects differences of opinion regarding the item "International Cooperation" amounting to 540 million ECU. While the southern EU countries are striving for more intensive cooperation with Latin America, Krueger primarily thinks of cooperation with the countries in Central and Eastern Europe.

First tenders for project proposals are to be issued at the end of 1994 and the beginning of 1995. The projects are assessed anonymously. Even though Krueger will try to

have all 20 programs passed during the second half of 1994, when Germany will hold the EU presidency, it remains to be seen whether this will be possible. Thus, Krueger must set priorities to get as many programs as possible passed. Of particular importance is the smooth EU financing of projects in the field of information technology with German participation. The passing of the environmental program is considered to be politically important. The EU decisions also have an effect on the EU's Common Research Office. It operates eight institutes in four countries, including an institute in Karlsruhe.

European Commission Technology Transfer Director Assesses Programs

BR1103110194 Brussels INNOVATION & TECHNOLOGY TRANSFER in English Feb 94 p 5

[Unattributed interview with European Commission DG XIII/D Director Dr. A.S. Strub: "Dissemination and Exploitation: A Greater Emphasis"—first paragraph is INNOVATION & TECHNOLOGY TRANSFER introduction]

[Text] Activity 3 of the Fourth Framework Programme is devoted to the diffusion and optimisation of results, and will further integrate all the EC's efforts in these areas under one programme. According to Dr. A.Strub, Director of DG XIII/D (Dissemination and Exploitation of RTD Results, Technology Transfer and Innovation), this will consolidate and enhance Europe's ability to convert its undoubted scientific prowess into internationally competitive products and services.

[INNOVATION & TECHNOLOGY TRANSFER] Is this the first time that the dissemination and exploitation of research results has been given such priority?

[Strub] Yes, certainly. Dissemination and exploitation is now one of the four major headings of the Fourth Framework Programme, giving these themes a much higher profile. What we are seeing here is the continuation of a long-term trend. As each Framework Programme succeeds its predecessor, the role of dissemination and exploitation has become more prominent. On the other hand, the current situation is that the funds proposed under this heading of the Fourth Framework Programme are not as high as the European Commission originally proposed, or as the European Parliament wished.

Nevertheless, I expect that the dissemination and exploitation work which was begun under the Second Framework programme, and is now being developed and expanded under the Third, will make further strides forward under the Fourth.

[INNOVATION & TECHNOLOGY TRANSFER] What, in your view, are the main features of Activity 3?

[Strub] From my point of view, one of the main features is the inclusion of work which up to now has been done

under SPRINT [Strategic Program for Innovation and Technology Transfer]. Both SPRINT and VALUE [program for the dissemination and utilization of research results in science and technology] are run from within my Directorate, and both programmes operate in the technology transfer area. VALUE concentrates on promoting the dissemination and exploitation of the results of Community-funded research, whereas SPRINT has a brief which is much broader—to contribute towards the creation of a better environment in Europe for innovation and technology transfer.

Up to now the administrative basis of the two programmes have been quite different, with VALUE within the framework programme system and SPRINT outside it. The two programmes have much in common and many shared interests, and the physical proximity of the two management teams means that coordination and cooperation between them is excellent. But having both under the same administrative 'root' will further improve coherence between the two programmes and facilitate the undertaking of integrated joint projects.

By the way, this poses a nomenclature problem. Should we keep the names VALUE and SPRINT, which everyone knows, or should we find a new name to cover both activities and to demonstrate that they are merged?

Another point worth noting is that the network of organisations set up under the THERMIE [European Technologies for Energy Control] programme to promote energy technologies is also put under Activity 3. That adds even more opportunities for a shared approach.

[INNOVATION & TECHNOLOGY TRANSFER] How will the financial environment for SME's [small and medium-sized enterprises] and European industry in general be improved to make taking up new technologies easier and more attractive?

[Strub] One of the objectives of Activity 3 is to improve the financial environment for the dissemination of technology: there will be two main strands to this.

One will target the interface between the financial world and innovative firms. The aim will be to improve communication across this interface, and facilitate investment in technological project. SPRINT has already done some work in this area—the SPRINT Investment Fora, for example.

The other strand will involve pilot financial schemes specifically aimed at encouraging SMEs to make use of research results and new technological developments. The SPRINT Technology Performance Financing Scheme, which has been a forerunner in this area, will be continued. We still hope that—notwithstanding the reluctance of some Member States—the Commission will also be authorised to try out a new financial 'instrument,' and that the funds finally made available to Activity 3 will allow it. This instrument is intended to improve the possibilities for financing the uptake of

technologies and RTD results by SMEs and will be adapted to the needs and practices of each Member State.

France: French Participation in STRIDE Program Reviewed

BR1103134094 Paris *ELECTRONIQUE INTERNATIONAL* HEBDO in French 3 Mar 94 p 42

[Report signed RF: "240 Million French Francs To Wake Small- and Medium-Sized Companies Up to Innovation"]

[Text] Electronics is well-represented in the French projects involved in the European Community's STRIDE [Science and Technology for Regional Innovation and Development] program. This program aids in the promotion of technological innovation with small and medium-sized companies and industrial concerns in those regions of Europe that are "slow developers" or which have been affected by industrial decline. The Fourth STRIDE Conference recently held in Metz gave an overview of the 104 French projects involved in STRIDE. Running since 1992, these projects, which should be completed in a few months' time, are worth a total of 240 million French francs. Aid awarded by the program goes mostly to bodies such as chambers of commerce or teaching establishments looking to develop awareness and training programs in technological innovation aimed at local industry.

Daniel Moers of ANVAR [National Agency for the Implementation of Research], one of the French program coordinators, said: "In France, STRIDE has already reached thousands of companies. Thanks to STRIDE, we are seeing an increasing number of small and medium-sized companies and industrial groups coming to ANVAR for aid for innovation."

With 26 projects, the Nord-Pas-de-Calais region is one of the main beneficiaries of STRIDE in France. Among the bodies in this region implementing STRIDE projects are the Nord Electronics and Microelectronics Institute and the Lille University of Science and Technology, which runs a number of awareness and training programs for small- and mid-sized companies in the field of "intelligent instrumentation."

Another major French beneficiary of STRIDE is the Lorraine region, which has 19 projects. These include training programs in electronics, home automation, and production automation organized by the Metz-based center for the research and application of technology for the Lorraine crafts industry.

Other French regions have also started up STRIDE projects. In Saint-Etienne, for example, the ARUFOG (association for the research and use of optical fibers and guided optics) is encouraging small and mid-sized companies to start using innovative optical instrumentation and photonics technology for industrial control. The Dantec high school in Lannion is working with local

companies to heighten their awareness of laser technologies and to encourage the use of lasers. At Dijon, the regional agency for technological development is working to spread the use of high-energy technologies to the small and medium-sized companies of Burgundy, while in Besancon the technical center for the clock and watchmaking industry is establishing an awareness program in the use of microelectronics.

Germany: Lower Saxony Minister Opposes Transrapid Train Route

AU1103151194 Hamburg *DIE WOCHE* in German 10 Mar 94 p 9

[Interview with Lower Saxony's Transport Minister Peter Fischer by Guenter Heismann; place and date not given: "There Will Be Problems"]

[Text] [Heismann] The cabinet has decided to build the Transrapid magnetic levitation [railroad] system between Berlin and Hamburg.

[Fischer] It is a bad decision. The Transrapid may be a highly interesting piece of technology that can sell on international markets. This is why a pilot track has to be built. But I do not think that densely populated regions in Germany are suitable for this. This technology is meant to connect urban centers located far apart, with comparatively thinly populated areas between them. It is only in such regions that the fast magnetic levitation train can demonstrate its biggest advantage—speed.

[Heismann] There were also plans for a pilot track between Hamburg and Hanover.

[Fischer] The former Lower Saxony government initiated a regional planning procedure in 1989 to determine the route, which failed. There was no administrative district, either Christian Democratic Union or Social Democratic Party controlled, that would have accepted the track. They all stood up in unison and asked: What would we get out of it? Nothing. The procedure was ended after a few weeks.

[Heismann] The people living near the track would have had only the noise, but no benefit, because the train only stops at the terminal points.

[Fischer] The Transrapid cannot be integrated into our country. It is a completely new system that we have to put on top of the existing transportation networks—railroads and freeways.

[Heismann] The magnetic levitation train does not go into the city centers.

[Fischer] We examined this in Hanover in 1988. We would have had to tear down entire rows of houses. The track could not be built above the existing railroad track either. We would have had to dig a tunnel from the suburbs to the city center.

[Heismann] What would have been the cost for this?

[Fischer] The tunnel would have cost up to an additional billion German marks [DM]. The situation in Berlin and Hamburg will be similar. The DM5.6 billion in public funds could have been used much more sensibly; on the federal railroads for instance. The wheel-rail system still has a lot of potential. Just take the ICE high-speed train. This system gets into the city centers on the existing tracks.

[Heismann] You still consider the magnetic levitation train to be promising technology. But industry will need a functioning route to demonstrate the technology if it wants to sell the Transrapid.

[Fischer] We need a region that is suitable for this technology, like the Moscow-St. Petersburg route. These are two urban centers of some 10 million inhabitants each. There is a sufficient distance of over 600 kilometers between them, which means that the Transrapid could go at full speed for some time.

[Heismann] Who could pay for this? Russia does not have any money.

[Fischer] If industry is really interested in a demonstration track, it will have to invest. The cabinet's decision harms the idea of the Transrapid. There will be a revolt along the track. The Monday before last I talked to my colleague Peer Steinbrueck from Schleswig-Holstein. His government is against the project. And we will also vote against the Transrapid route between Berlin and Hamburg in the Bundesrat.

German Government To Accelerate Transrapid Project

BR0303152794 Bonn *DIE WELT* in German 17 Feb 94 p 13

[Article by Richard Schulz: "Bonn Intends To Speed Up Transrapid Construction—Opportunities for Lodging Objections To Planning and Route Will Be Restricted"]

[Text] The planning and construction of the Transrapid line between Hamburg and Berlin will be speeded up by law. The cabinet in Bonn will discuss a Transport Ministry bill to this effect at the end of the current month. It follows in the wake of the transport route acceleration act, which is already in force and which restricts opportunities for those affected to lodge objections.

The bill provides that opposition proceedings against a planning decision or planning license will not delay the building of the magnetic levitation railway. To date, it has only been possible to build transport routes in western Germany after all the complaints, for example those lodged by people living close to the proposed route, have been heard.

Objections to the project or route lodged after the deadline will not be taken into consideration at all,

whether they be justified or not. Substantial shortcomings in the weighing-up process or a failure to observe procedural or formal rules will only give rise to the revocation of the planning decisions "if they cannot be remedied by amending the plans or by recourse to a complementary procedure."

Authorities involved in the building of the Transrapid line will be obliged to work more quickly. They must file their comments with the Federal Railways Office within three months at the latest. The office will act as both planning and adjudicating authority.

Local authorities will lay the building plans open to public inspection within three weeks of receiving them. The adjudicating body must conclude its deliberations within three months of the deadline for lodging objections.

As the bill has already been examined for compliance with legal formalities, and as the other federal ministers are in agreement, it is considered a foregone conclusion that the cabinet will pass the bill. There is no need for the Bundesrat to give its consent.

EC Allows Extension of Special Measures for Industrial Research in Eastern Germany

BR0403160794 Bonn *TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN* in German 14 Jan 94 p 2

[Text] The Commission of the European Union has just agreed to the extension of three special measures designed to promote industrial research in the new federal laender. These funding measures, which are specially tailored to the needs of small- and medium-sized enterprises [SMEs], were launched back in 1990 and 1991 and have already achieved initial positive results in terms of the stabilization of industrial research in the new federal laender. The [word omitted in original] of industrial research in the new federal laender was primarily up to private industry, stressed Federal Research Minister Dr. Paul Krueger, although the radical changes that the new laender were currently undergoing necessitated a substantial commitment on the part of the state over a transitional period. The three special measures concerned consist in:

1. Funding for R&D Staff Expansion

SME's receive subsidies equivalent to 50 percent of the salaries of scientists and engineers newly recruited to set up or expand their in-house R&D capability. Since 1990, 932 mainly small, innovative businesses have been funded to the tune of 45 million German marks [DM], making it possible to secure 2,800 industrial research jobs.

The deadline for applications for inclusion in this measure has been extended to 31 December 1995.

2. Contract Research East

Also since 1990, SME's have been receiving 50-percent subsidies when they award R&D contracts to specialized R&D contractors in Germany and abroad. This offer of funding has to date been taken up by 863 businesses for 1,273 R&D contracts. Subsidies totaling DM110.4 million have thus set contracts for an overall value of DM225 million in motion.

3. Contract Research West-East

This measure supports research facilities and firms that obtain R&D contracts from elsewhere, in particular from the original federal laender and eastern Europe, with 35- to 40-percent subsidies. The rate of take-up is particularly brisk, and the trend is extremely satisfactory. The measure helps the research facilities in the new federal laender to adapt to market requirements. Since 1991, 485 facilities have taken advantage of this program to win a total of 1,024 R&D contracts for an overall value of DM208 million, the BMFT [Federal Ministry of Research and Technology] share amounting to DM80.8 million. Between them, these two varieties of contract research contributed to the preservation of about 2,000 jobs in industry-oriented research in 1993.

The deadline for applications for inclusion under these two measures has been extended to 31 December 1994, after which firms may apply to the nationwide "Joint Research in the SME Economy" program, which has recently been relaunched by the BMFT and, if initial impressions are anything to go by, is really gathering momentum.

Netherlands: Strong Financial Support for Biotechnology Research

BR2202140394 Rijswijk BIONIEUWS in Dutch
29 Jan 94 p 5

[Unattributed article: "Large Boost To Biotechnology Research"]

[Text] Three ministries and the NWO [Dutch Organization for Pure Scientific Research] are jointly donating 22 million guilders [G] to stimulate industrially relevant university biotechnology research. Biotechnology is also to receive another G45 million in subsidies from ICES [expansion not given] funding to improve the knowledge infrastructure.

After three years of negotiations, three ministries, six universities, NWO and NIABA [Netherlands Industrial and Agricultural Biotechnology Association] have agreed to set up and subsidize ABON [Association of Biotechnology Research Schools in the Netherlands]. During the NBC5 [Fifth Netherlands Biotechnology Congress], ABON will present an overview of current and future activities.

The association can count on strong government subsidies. The five research schools participating in ABON will receive subsidies of G22 million over five years: G10 million from the Economic Affairs Ministry, five million

guilders from the Education and Science Ministry, five million guilders from the NWO and two million guilders from the Agriculture Ministry. The subsidies will be matched by the participating universities. The total amount of 44 million guilders will create around 65 full-time research jobs in universities, in DLO [Agricultural Research Department] and TNO [Netherlands Organization for Applied Scientific Research].

The investment plan follows the main lines of the project areas suggested by the NIABA, namely: "structure function relations," "research of plant resistance," "metabolic pathway engineering" and "integrated bioprocess development."

The four areas have been elaborated into a number of themes which are both scientifically challenging and interesting for the industry. Each area will have one or two research schools managing the projects. In turn, each school has appointed a professor to "lead" the projects.

In order to ensure that industry has input into the activities, ABON will have a "Scientific and Industrial Advisory Council" which will issue binding advice.

Cooperation

The ABON unites five biotechnology research schools:

- BioCentrum Amsterdam;
- Biotechnological Sciences Delft Leiden (BSDL);
- Experimentele Plantwetenschappen (EPW, of Wageningen);
- Voeding, Levensmiddelen, Agrobiotechnologie en Gezondheid (VLAG, of Wageningen);
- Groningen Biomolecular and Biotechnology Institute (GBB).

The BioCentrum Amsterdam will concentrate on fundamental and applied research. The connecting theme will be the growth and development of living organisms including yeast and bacteria.

The BSDL will deal with three areas: industrial plant biotechnology, environmental biotechnology and industrial biotechnology.

GBB will concentrate on the atomic structure and function of biomacromolecules.

EPW will gather knowledge on four themes: the development of plants and differentiation; disease and resistance to disease; metabolism and energy location in plants; plant biotechnology.

VLAG will cover the entire agricultural area and more specifically three core themes: nutrition and health; food technology and food; food resources and agrobiotechnology.

Knowledge Infrastructure

In addition to the ABON, there is more good news for biotechnology. Last week the cabinet approved two major biotechnology projects to strengthen the knowledge infrastructure: biotechnological soil purification will get G25 million, while biotechnology's material infrastructure can expect G20 million.

Soil Purification

Universities (including Groningen), large technological institutes, engineering consultants and companies will participate in the first project covering biotechnological soil purification. TNO, Grondmechanica Delft and Heidemij have developed a program for cleaning up polluted business land on site, called NOBIS [Netherlands research program for biotechnological on-site cleaning]. The goal is to develop the biotechnological clean-up of polluted soil using micro-organisms to break down the pollution.

Material Infrastructure

The second biotechnology project in ICES is called MIBITON. The cabinet wants it to strengthen the material infrastructure of biotechnology research in the Netherlands. MIBITON is a positive reaction by the cabinet to a proposal from ABON and NIABA. These two bodies have drawn up a joint investment program for the coming five years which includes a one-time boost from the government, the G20 million mentioned above. This amount will be supplemented with industrial resources worth around G12.5 million in the form of the revolving fund for industrial investments. In order to effectively monitor these investments, NIABA and ABON will set up the PPSB foundation [public-private biotechnology cooperation] in close consultation with the government.

Germany: Social Democratic Party Proposes R&D Priorities for 1994

BR2402114194 Bonn *TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN in German*
27 Dec 93 pp 2-3

[Text] The SPD [German Social Democratic Party] parliamentary group presented its research and technology plan for the 1994 government program to the public on 10 December. Its research spokesman Josef Vosen described the three most important political measures of the coming years as follows:

- The government and industry must provide more funds again for research and technology;
- All the legal and administrative obstacles in the Federal Republic of Germany must be removed in order to facilitate innovation, and
- A broad, consensus-oriented dialog among industry, scientific organizations, unions and government must

be promoted concerning the future trend of technological developments and the specific measures to be taken.

"We must also put research and technology to the service of ecological renewal," emphasized Vosen. The SPD intends to target the following areas:

Ecological Renewal

This should extend to research for new environment technologies, energy saving and renewable energies, for reactor safety, and the safe handling of radioactive wastes. Research into improving the safety of nuclear technology must be safeguarded and continued.

The main objective must be to achieve a general reduction in emissions and a kind of recycle economy. Ecological renewal will also strengthen competitiveness considerably and act as a precautionary measure.

Improving Competitiveness

The SPD intends to improve the competitiveness of German industry and of medium-sized firms in particular, by targeting funds on key technologies of the 21st century, such as information and communications technology, production engineering and manufacturing, transportation (water, ground, air, space), biotechnology and genetic engineering, materials research including superconductors, and laser technology.

They expect a major commitment from industry in this respect.

New Methods

A dialog on technology policy should be developed, in which important representatives from industry, scientific organizations, unions, and other social groups make proposals to parliament as to the common steps that must lead to the future.

Technology transfer from basic research to the application stage will be improved by new methods.

Moreover, tax procedures related to research promotion will be introduced.

The research capacities in the new German laender will rapidly be brought in line with those which are customary in the old laender.

A structure committee will be engaged to prepare a report on the current tasks, organization, and funding of major research establishments.

Strengthening Preventive Measures

The SPD intends to resume research into ways of making working life more humane. The opportunities opened up by biotechnology and genetic engineering for new drugs and high-yield useful plants will be utilized by increased funding. The risks of biotechnology and genetic engineering will be monitored carefully.

In the field of preventive health, the SPD intends to try to reduce the risks presented by Aids, rheumatism, cancer, and heart and circulatory diseases by taking new research initiatives.

Safeguarding the Advance of Knowledge

The scope and funds for basic research will be safeguarded, and the evaluation of the consequences of technology will be extended.

Filling in the Funding Gaps

The SPD intends to make good the substantial deficit in the research budget that has been incurred in recent years by providing DM1 billion for all these measures. It also aims to provide better funding in the Fourth European Framework Program for Research and Technological Development.

Details about the research and technology plan of the SPD parliamentary group together with documentation on R&T initiatives (1991-1993) of the SPD can be obtained from the service department of the SPD parliamentary group, Bundeshaus 53113 Bonn, Tel. 0228/167133, fax 0228/1686800.

Germany: Biotech Jurisdiction To Be Reorganized

BR2402114794 Bonn *TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN* in German
27 Dec 93 pp 5-6

[Text] The federal government will continue to support biotechnology and genetic engineering in North Rhine Westphalia. Consequently, official responsibility for these areas, previously fragmented, will be concentrated and made more efficient. In the future, genetic engineering facilities in North Rhine Westphalia will be approved solely by the North Rhine Westphalian Office for Environmental Protection in Essen. This office reports directly to the Federal Ministry for the Environment.

Matthiesen expressly called for a more objective discussion about the application of biotechnology and genetic engineering. The minister cited the applications in which the federal government considers there are great opportunities for biotechnology and genetic engineering. Research and application should be welcomed:

- In areas where plant protection agents are exploited, hence reducing the pollution of waters by increasing [plant] resistance;
- If vaccines can be produced to facilitate the control of epidemics and reduce the costs;
- If the slaughter of animals, for example in connection with animal tests, can be greatly reduced, or replaced altogether;
- If feed additives for useful animals are produced on a large scale, making it possible to increase the value of

the feed by natural methods and hence reducing substantially the volume and nitrogen content of liquid manure;

- If biological, "gentle chemistry" is carried out, enabling substantial energy savings to be made and thus reducing emissions and the production of wastes;
- If genetic and biological engineering processes are used to identify environmental poisons (bioindicators), or to remove them in a controlled manner by specific degradation processes.

"I am against any application where animals are deformed to become yield machines by intervention in their genetic make-up. We should also reject applications where genetically-engineered growth and production promoters turn a dairy cow into a 'turbocow'," declared Matthiesen.

France: No Privatization for Aerospatiale Until 1995

BR0103134294 Paris *LE QUOTIDIEN DE PARIS*
in French 1 Mar 94 p 9

[Text] Prime Minister Edouard Balladur confirmed in Toulouse yesterday that "there currently are no privatization plans for Aerospatiale."

Talking to the deputies of the Midi-Pyrenees region within the framework of the nationwide debate on reorganizing national and regional authority, which should result in a proposal in the spring on a reorganization strategy, Mr. Balladur stressed that it was important "in the future for Aerospatiale to be able to enter into alliances essential to its development," adding that "the government will examine this issue in due time."

In addition, the prime minister explained that the 2 February decision by the government to increase Aerospatiale's capital by 2 billion French francs was indicative of "its willingness" to support this sector even under "difficult budgetary conditions." Aerospatiale features on the list of public companies which the government plans to privatize. However, several members of the government have repeatedly said that Aerospatiale's privatization is not planned before 1995.

President Francois Mitterrand himself opposes this privatization on national interest grounds. Mr. Balladur remarked that "he did not see any need to keep bringing up this issue, which is not on the agenda right now and not for some more years to come."

Speaking in more general terms, he assured that the government is "very alert" to difficulties encountered by [defense] companies and that he "vigorously supports corporate reconversion processes, closely scrutinizes corporate social plans, and strengthens national companies whenever possible." Moreover, with regard to the more equal geographic distribution of public research in

France, the prime minister explained that "it is not a matter of finding new research facilities in the provinces," but "rather of defining the conditions that would allow scientists from these regions to successfully take part in international competition."

EU S&T Research Committee Backs East-West Joint Research

BR0203092194 Brussels EUROTCH FORUM JOURNAL in English Feb 94 pp 3-4

[Unattributed article: "COST Meeting"]

[Text] A meeting of the senior officials of the Committee on Scientific and Technical Research (COST) took place in Brussels on 20-21 January. The meeting was chaired by Mr. N. Roulet.

There was agreement on COST's policy on possible enlargement. Almost as a precursor to this, the Committee decided on participation from non-COST countries in its 78 ongoing actions from:

- the Cluj-Napoca Technical Research University of Rumania and the Radio Research University of Rumania and the Radio Research and Development Institute from Moscow in Action 235 (Radio propagation effects on next-generation fixed-service terrestrial communication systems);
- the University of Melbourne in Action 240 (Techniques for modelling and measuring advanced photonic telecommunication components);
- the Institute of Terrestrial Magnetism of Izmiran (Russia) in Action 238 (Prediction and Retrospective Ionospheric Modelling over Europe (PRIME)).

The Committee also had an extensive exchange of views on the different sectors in which COST is particularly active. These included materials science, biotechnology, transport and telecommunications. It was also decided to establish two working parties on procedures and the ways of improving the methods of this cooperation system. These will report to the next meeting of the Committee. One working party will examine the suggestions for improving the procedures, while the other will review the actual role of the Senior Officials Committee.

Eight new actions were decided upon, including:

- continuous speech recognition over the telephone (COST Action 250);
- management and information application development (COST Action C4).

On the central issue of the meeting, enlargement, the Senior Officials decided that:

- COST should retain its identity as a dynamic mechanism for enhancing scientific and technical collaboration across Europe;

—COST will continue its policy of openness along the lines of the Ministerial Resolution of the Vienna Conference;

—Each request for participation as a full member will be examined on a case-by-case basis, taking into account the manageability of the COST system;

—Such requests will be considered on the basis of mutual benefit and institutes of research of the countries concerned should be encouraged to participate in individual actions. The participation in individual COST actions will be the appropriate way to evaluate scientific interest and mutual benefit before a decision on the entry of a new member;

—A COST Ministerial conference in 1996 could be a framework to confirm possible decisions of the COST Senior Officials Committee concerning the enlargement of COST. If that is the case, the countries concerned should be invited to participate as observers at COST after the decision of the COST Senior Officials Committee;

—Cost will continue to inform non-COST countries about its activities.

EC Auditors Review ESPRIT Research Program

BR0203094894 Brussels EUROTCH FORUM JOURNAL in English Feb 94 pp 1-3

[Unattributed article: "ESPRIT: The Final Judgement"]

[Text] The EC Court of Auditors' special report no 6/93 is to be welcomed as a timely assessment of the European Union's information technology research programme, ESPRIT. A searching audit of the programme by the EU's hard-nosed financial watchdog, coming towards the end of the ESPRIT's current life-cycle, is a positive move which might have usefully been carried out in the programme's earlier days.

The views of this lesser-known EU institution, charged with the job of ensuring accountability, must be implemented as the new information technology programme unfolds under the Fourth Framework programme.

Yet there is not all that much new in what the Court of Auditors had to say. Most of the sharp-edged and incisive points they make about ESPRIT have been made many times before—some almost from the programme's inception. Many of these points have been reiterated over and over in this very editorial column.

The Court of Auditors' Report is like the summing-up of a judge at the end of a lengthy trial, a summing up that takes account of evidence and opinions garnered over many years.

One issue that stands out is that of precompetitive research. The ESPRIT programme early on developed an ideological attachment to this, which suggested that the exploitation of research results would be an act of

dangerous intervention. That this issue still has to be questioned after all this time is hard to believe.

However, it has to be acknowledged that progress has been made. The transfer from DG XIII to DG III ended ESPRIT's experience of existing in an isolated empire, opening the programme up to broader economic, industrial and other considerations.

With the approach of the Fourth Framework, it is to be hoped that the summing-up of the eminent judges in Luxembourg will prove final and that the programme under its new name can start a new life without making the same mistakes over again!

Single Market Strategy

As mentioned in the last issue of the Eurotech Forum, the EC Commission has devised an elaborate framework to consolidate and to regulate the Single Market. This is known as "Making the Most of the Internal Market": Strategic Programme.

According to the Commission, it decided "to prepare a strategic programme for the completion, the management and the future development of the internal market, which can serve as a guide to the main priorities of the Community in this area and as a means of measuring the progress of the Community towards its objectives."

They also add that "an overall plan for the implementation" of the internal market is desirable. The Commission wants to see this come about by an endorsement from the Council of the general orientation provided in the strategic programme and by a firm undertaking by the Council to accelerate discussion on the seventeen legislative proposals from the 1985 White Paper that are still before it, with a view to their final adoption before the end of 1994.

The strategic programme is divided into specific categories. Section A, which is the completion of the basic legal framework calls for the adoption of the legislative proposals that still have to be agreed so that the basic legal infrastructure for the single market can be established and which will serve to expose regulated sectors to competition.

This includes the adoption of the outstanding measures from the 1985 White Paper, in the areas of company law, taxation and intellectual and industrial property. Action to ensure the free movement of persons as well as measures to introduce competition into the regulated sectors of energy, telecommunications and postal services are envisaged.

Section B deals with managing the single market. This aspect of the strategy is about the need to ensure conformity and transparency in the transposition of Community directives into national law and the need to ensure quality in enforcement. Measures will be introduced to support administrative cooperation, including proposals

on the development of a communication and data exchange network for Union administration.

Means of redress, such as providing access to justice and judicial cooperation, will be developed, as will the importance of evaluating Community rules. The "practical performance of the legislation" and "the broader business and economic impact" will be assessed. In this context, existing networks will be used.

A major study on the economic effects of the internal market will get underway in 1994 with likely publication in 1996. Improvements to the INTRASTAT system are also envisaged.

Section C is about developing the single market. This will take steps to ensure transparency and the application of the principle of proportionality in preparing new Community legislation. Regarding communication and information measures, the Commission will devise "a coherent strategy involving Community institutions, national administrations and non-governmental organisations in a systematic and coordinated way."

Moves to improve the business environment will deal with the application of competition policy, improving cross-border payments, further proposals on transport, promotion of Union-wide protection of intellectual and industrial property, improving company law, the creation of a favourable tax regime for business, covering action on both direct and indirect taxation, the upgrading of European standardization and conformity assessment and quality systems.

Further improving the environment for the consumer and the relationship between sustainable development and the internal market as also included, as is the establishment of trans-European networks. The strategic programme points to the convergence of interests and coordination and action designed to stimulate private investment and to ensure technical interoperability, and proposals on the "early development of telematic networks between administrations."

EC Auditors Review ESPRIT Research Program BR0203095194

[Text] Section D seeks to promote a dynamic and open external policy. Under this heading are issues like the management of the Union's external frontier and the completion of the common commercial policy in the context of the internal market.

Section E points to an ongoing process of evaluation of the strategic programme. The annual report on the internal market is considered as the principal mechanism for this.

Standards Upgraded by Strategic Programme

The strategic programme points to standards as being a key component in Europe's unified market, vitally important for the implementation of policy in a wide range of areas.

"European standardization and conformity assessment instruments are an invaluable tool in the implementation of other policies, including environment, energy, food quality, safety at the workplace, and trans-European networks."

The Commission, so as to exploit the potential contribution of European standardization to the effective functioning of the internal market, proposes:

- to undertake a review of the way in which European standardization could be financed over the medium term. This will aim to identify ways in which the resources invested by member states, the Community and the private sector in national and European standardization can be best harnessed for the purposes of developing a standardization system which meets the requirements of European integration.
- increasing transparency to ensure, for example, that a wide-ranging public enquiry takes place on the technical merit of proposals for European standards. The development of mutually agreed work programmes is another aspect of the overall approach.
- standards and research as they ensure the effectiveness of European telecommunications. Moreover, the Commission is beginning to work on the formulation of a Union quality policy which is due to be finalised by the end of 1994.

JRC Future Role Mapped Out

The Council adopted on 14 January the conclusions on the role of the Joint Research Centre (JRC).

This reaffirms the need for the JRC to strengthen its competitive nature on the basis of a genuine customer/contractor relationship. Contributing to a Community research policy, especially in sectors where it has special, if not unique, skills and in areas where its neutrality is needed for scientific and technical support for Community policies, is recognised as important for the JRC.

The Council points to the need to support new ways forward for the JRC, saying that it should "progressively enter the competitive arena, generally in networks with other laboratories, in specific programmes under the framework programmes to which it can contribute, and for activities providing scientific and technical support for Community policies of a kind suitable for that competitive approach. It emphasizes that funding decisions under the framework research programmes (1994-1998) should reflect that objective."

It was agreed that the proportion of JRC activities in the framework programmes to be carried out in the competitive system should average 24 percent for the EC framework programme and 10 percent for the EAEC [European Atomic Energy Community] framework programme for the period from 1995 to 1998.

The Council also agreed on a set of guidelines for defining the JRC's activities, especially regarding its contribution to the framework research programmes (1994-1998).

It also wants the Commission to submit a progress report on the implementation of these conclusions to the European Parliament and the Council in 1996, involving an opinion from the Board of Governors, allowing the Council to make an assessment.

The Council also asserts that "the JRC should be a driving force in improving links between research laboratories and institutes in all the Community's regions."

The guidelines set out the terms and conditions under which the JRC will operate up to 1998.

Regarding institutional activities, these will be entirely funded from the framework programmes. The JRC will also be involved in institutional RTD [research and technological development] activities "which contribute to the implementation of the Union's research policy." This also implies scientific and technical support in which the Directorates-General will use the JRC as a service provider.

The Council permits JRC establishments to form networks with research institutes in any of the member states. They also make provision for the JRC to engage in competitive activities outside the framework programmes on behalf of third parties, including work in the context of member states' RTD programmes. The JRC will also be able to participate in other Community activity such as PHARE [Poland-Hungary Actions for Economic Reconversion], etc.

Regarding budgetary provisions, the JRC will charge 100% of its costs for its involvement in competitive support activities in the framework programmes. Within the framework programmes (1994-1998), the JRC will be provided with an operational budget of an overall amount of 875 million ECUs (300 million ECUs for nuclear activities and 575 million ECUs for non-nuclear activities), which will cover the total funding of its institutional activities and, in the case of competitive activities, the costs not covered by shared-cost contracts.

Within the Framework programmes will be two operational programmes for the JRC, one for nuclear and the other for non-nuclear activities. Competitive work will begin on 1 January 1995 and proceed in line with the framework programmes (1994-1998).

EC Auditors Review ESPRIT Research Program

BR0203095294

[Text]

Auditors Report Critical of ESPRIT

The EC Court of Auditors has issued a report, highly critical of the European Union's information technology programme, ESPRIT. The Luxembourg-based institution believes that the EU's flagship research programme has problems with its managerial approach, could be more innovative technologically and is too closely wedded to the concept of pre-competitive research. The report also points to a lack of speed and an insensitivity to the needs of small- and medium-sized enterprises (SMEs).

Whilst recognising the contribution that ESPRIT has made to the information technology industry in Europe, it feels that some of the programme's internal procedures are inadequate and that this must be highlighted.

The auditors' report is critical of the failure to fully exploit ESPRIT's results, pointing out that this is what, in essence, funds the programme. Attempts to redress this fundamental flaw in ESPRIT III, by means of "targeted projects," do not go far enough, the report claims.

The EU's financial watchdogs are concerned about the lack of continuity between the pre-competitive research level and the point at which results are used. The Court points out that the Commission is willing to devote significant resources to market-led activities such as technology transfer, etc, when they are clearly separate from research, but are unwilling to do the same when it is a matter of extending a research activity to a competitive level. The Court of Auditors firmly believes that the pre-competitive issue has to be looked at to prevent it from undermining the EU's research efforts.

The auditors also believe that further thought must be given to the relationship between other aspects of policy, such as competition and industrial policy and research, as well as consideration of worldwide developments and the strategies of Europe's industrial rivals.

Moreover, it is felt that SMEs should be better facilitated within the ESPRIT programme. Procedures for contractors are considered to be too slow and complex. Payment periods are also said to be too slow. It is suggested too that the Commission should look more closely at the selection of coordinators for leading research consortia.

European Molecular Biology Laboratory in Trouble

BR0303104294 Rijswijk BIONIEUWS in Dutch
29 Jan 94 p 4

[Article by Hayo Canter Cremers: "EMBL Finds Itself in Turbulent Waters"]

[Text] The EMBL [European Molecular Biology Laboratory] is facing difficult times. Indeed, it looks as if Spain,

like Italy, is going to leave the EMBL. Netherlands representatives within the European Molecular Biology Organization [EMBO] fear that this domino effect will affect basic research, because even the German, French, and British are complaining.

Unlike in the Netherlands, in most countries the contribution to the EMBL is drawn from the local research budget. Together, these contributions constitute an annual budget of approximately 70 million guilders. However, since the pressure from the current economic recession in Europe causes compulsive economizing, many countries want to see a greater return on their considerable investments.

The funds are managed by the European Molecular Biology Conference [EMBC] and the EMBL Council, which comprises representatives from the various countries involved. The representatives for the Netherlands are Professor Dr. Peter van der Vliet (Physiological Chemistry, Utrecht University) and Marga Vintges M.Sc. (Science Policy, Education and Science Ministry).

Van der Vliet is not enthusiastic about the increasing hesitation on the part of the various member states. "I find their attitude rather short-sighted. In most countries, the emphasis is shifting to short-term, application-oriented research, but important new results are achieved on the basis of long-term, basic research, such as that carried out at the EMBL. Normally, the best researchers are needed for basic research, and they cannot be selected on the basis of political decisions.

No Money Available

The EMBL has been dogged by financial shortages for some time now. Frustration at the limited budget available for new projects was the reason why in April of last year, Swedish Professor Dr. Lennart Philipson, the man behind the eminence of the EMBL, unexpectedly resigned. At his instigation, the Council regularly agreed to take on new projects, but a number of countries refused to make enough money available to carry them out. Consequently, the projects had to be cancelled.

Philipson's successor, Greek Professor Dr. Fotis Kafatos, is expected to be more successful, notably because he has better contacts with the European Union [EU] officials who have a great deal of money to distribute.

The attractiveness of the EMBO, the governing organization, is also under threat, for it is facing growing competition from similar programs initiated by the EU and by individual European countries. In many cases, these programs offer more favorable conditions. For instance, unlike the EMBO, the European Union offers allowances for chemicals, and higher salaries.

Quality Is the Watchword

The EMBO was set up in 1969, when one of its primary objectives was to become the face of basic research on molecular biology in Europe. It was also supposed to counterbalance U.S. organizations in the same area.

Primarily thanks to political and diplomatic support from Switzerland, the organization quickly received contributions from many countries, including the Netherlands.

Quality is the watchword for all activities undertaken at the EMBO. With its 32.2 citations per publication, the EMBL in Heidelberg ranks among the top five laboratories scoring the highest impact figures in the world. The "EMBO JOURNAL" is one of the most influential scientific journals. Its impact figure of 12.4 means that of all journals in the molecular biology sector it must bow only to CELL (which has an impact figure of 30.2). In addition, EMBO scholarships are recognized as a mark of quality. Hence its researchers are welcomed with open arms in most laboratories.

Furthermore, the research groups which are allied to the organization, but accommodated in the European Synchrotron Radiation Facility in Grenoble and the Hamburg Synchrotron Laboratory, enjoy international recognition. The many small workshops and laboratory courses that are organized thanks to the financial support of the EMBO, satisfy a great need, and contribute greatly to the good contacts maintained between European researchers.

CORPORATE ALLIANCES

France: Northern Telecom, Matra Alliance Developments

93P60168 Paris 01 Informatique in French 19 Feb 93
p 7

[Text] The strategic alliance between Northern Telecom and Matra Group resulted in new developments concerning the Canadian company's Meridian autoswitches and Matra's Matracom 6500s. Envisaged among the joint developments will be the combining of PABX (private automatic branch exchange) wireless operations and Matra PABX systems in September, and adopting the QSIG (quality standard inspection g?) interoperability standard for PABX systems in early 1994. Differences in ATM strategies will stay unchanged: Matra is interested in private networks, Northern Telecom in public ATM networks. However, a common association will be created for exploiting WAN (wide area network) communications. For the "private" ATMs, Matra is relying on a U.S.-produced component, based on a switch that is still under development. This equipment should connect the Ethernet networks and the ATM-card-equipped PABX 6500s by way of a 34-Mbps ATM link.

U.S.-Italian Cooperation in Building HT Superconducting Cables

94WS0213A Frankfurt/Main FRANKFURTER
ZEITUNG/BLICK DURCH DIE WIRTSCHAFT
in German 17 Jan 94 p 10

[TEXT] An initial test cable should be ready for use in one year—Large-scaled use not for 50 years.

After about five years in development, the North American company American Superconductor in Westborough, Massachusetts, has introduced the prototype of a superconducting high-current cable made of high-temperature superconductors (HTSC) and measuring one meter [in length]. An initial test cable with a total length of about 30 meters should be completed in about one year in cooperation with the Italian company Pirelli Cable in Milan.

This cable will then be able to be used for the first time in practical tests in power supply companies. It is hoped that in two years a one hundred meter long cable will be completed, which could then be put into trial operation. The cable corresponds approximately to the requirements for smaller power supply grids in terms of currents to be carried and the resultant magnetic field intensity.

The developer reports that a direct current of 2,300 amps per fiber can be transmitted, which is approximately double the value of comparable HT superconductors from other developers. The magnetic fields in the order of 0.2 tesla resulting at these current intensities are sustained without the superconductor breaking at operating temperatures of 77 kelvin.

The cable now being introduced consists of oxides of bismuth, strontium, calcium and copper, which are filled in power form in tubes made of silver and then subjected to the required heat and acid treatment. Finally the tubes are drawn out to fine filaments with a diameter of 200 micrometers using a drawing process developed [by the producer].

The test cable is then weaved together by hand from hundreds of the fine fibers. The North American superconductor company has so far been able to produce a filament of this type with a total length of nearly 1,000 meters.

In this collaboration, the Italian cable producer took on the task of putting together the cable with the electric and thermal isolation. The cable is to have a hollow space at its center through which the liquid nitrogen used for cooling will be pumped.

Pirelli also intends to develop with an Italian engineering company a new machine which can weave the fine filaments together automatically.

Energy experts estimate that power supply companies will be able to install the first shorter lengths of direct current cable in ten years at the earliest; however, the

behavior of the cable will have to be closely monitored for some years before it can live up to all the technical and safety requirements.

[Experts] are also of the view that it will not be for about 50 years at the earliest that we can think of replacing the high-voltage operated alternating current transmission supply lines with superconducting direct current cable, according to the American Superconductor Corporation (Westborough, Massachusetts 01581, USA).

Germany: Bonn Leads Research in High-Efficiency Diode Lasers

94WS0213B Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German 19 Jan 94 p 8

[TEXT] Hopes for a major advance in technology and development—America's lead to be overtaken.

Thirty-four years after the discovery of the first laser, another generational shift in high-efficiency lasers is again approaching with the transition from tube technology to semi-conductor technology, or from gas laser to diode laser. In the areas of entertainment electronics and communications and information technology, the replacement of tube technology with semiconductor technology has already made possible and produced revolutionary developments.

It is expected that a similar major advance in technology and development in [the area of] high-efficiency lasers will fundamentally shape future laser equipment technology and open up new fields of application. The German government intends to support this development with the joint Laser 2000 program, which Federal Minister of Research and Technology Paul Krueger has now introduced in Bonn.

Preparing the generational shift in technology with high-efficiency lasers is the object and goal of the pilot project, already started at the beginning of the year, on high-efficiency diode lasers and diode-pumped solid-state lasers. It has to do with developing a small, compact, high-efficiency, low-maintenance laser. It is expected that such an generation of lasers will open up broad markets. Materials processing in particular is being considered in this context, as well as using laser technology for television.

Substantial work was already done on the high-efficiency diode laser in the second half of the 1980's in America under the strictest secrecy in the Lawrence Livermore National Laboratory within the framework of the former SDI program. One important field of application which stands in the forefront is automobile manufacturing. The German government is hoping that with the current Laser 2000 program the present lead by the United States will be overtaken. So the project will be oriented toward the needs of industry. A project advisory council

was formed representing Siemens, Janoptik, Rofin-Sinar, Haas Laser, Adlas and Baasel [as written] Lasertechnik. The pilot project is currently made up of three joint projects in industry and four joint research [projects].

Parallel to this, the four joint research projects will deal with basic research themes such as the preliminary research in securing technical scientific alternatives—for example, new technologies for high-efficiency diode lasers and new ytterbium-base solid-state lasers.

The work of the four joint research projects is being financed with about 30 million German marks through the Federal Ministry of Research and Technology. For the three joint industry projects, financing in the amount of 35 million German marks is being projected, to which the Federal Ministry of Research will contribute around 19 million German marks.

France: Alcatel Alsthom To Buy 17 Percent of Framatome

94WS0233C Paris LE MONDE in French 15 Feb 94 p 19

[Article: "Alcatel Alsthom Expected To Acquire 17 Percent of Framatome"]

[Text] Framatome's revamped capital structure is beginning to take shape. In an interview published Monday 14 February by LES ECHOS, Phillippe Rouvillois, administrator general of the CEA [Atomic Energy Commission] and head of CEA Industrie—which as owner of a 36 percent interest in Framatome is the nuclear boiler maker's biggest public-sector shareholder—described in broad outline the purpose of negotiations now under way with Alcatel Alsthom.

In accordance with the wishes expressed by the state (LE MONDE of 23-24 January), "it is envisaged that public-sector participation will be reduced to that of a blocking minority," or 34 percent of the stock, Mr. Rouvillois confirmed. EDF [French Power Company] will keep its current 10 percent share, he said. On the other hand, according to Mr. Rouvillois, CEA-I is expected to transfer "a little more than 10 percent of Framatome's stock," reducing its own interest to less than 25 percent, while Credit Lyonnais surrenders its 5 percent holding.

The state, which now controls Framatome indirectly with its 51 percent share, will give up 17 percent and offer it to Alcatel-Alsthom, Mr. Rouvillois said. In the past, Alcatel-Alsthom, owner of a 44 percent interest in Framatome, had been keen to acquire the additional 7 percent of stock needed to constitute a 51 percent controlling interest. Could it be that Mr. Suard's group is being backed into a corner?

Daimler Benz's Aim To Obtain Majority Shares in CGS Rumored

94WS0241C Paris LE MONDE in French 21 Feb 94 p 13

[Article: "Daimler Wants To Become Controlling Shareholder of Cap Gemini Sogeti"]

[Text] Daimler Benz just can't get enough of Cap Gemini Sogeti [CGS], at least to judge by what executives of the German colossus in Stuttgart are saying. Since July 1991, Daimler Benz, as a partner of the French computer services group, has held a 34 percent interest in Sogeti, which is CGS's holding company. But now, by converting a stockholder loan into shares and by exercising, in a new stock issue, the subscription rights it obtained as part of the partnership accord negotiated between the two groups, it has the chance to acquire a controlling majority of CGS as of 1 February 1995.

Though all this is still a year ahead, rumors are already flying. Last week the rumor mill was stirred up again by publication of CGS's earnings statement for 1993, which showed a loss of 434 million [French] francs. Daimler Benz attitude toward CGS is unambiguous, according to sources at the company's Stuttgart headquarters. The group says it does not want to withdraw from the French company but rather is looking for a partner that will help out on capital acquisition but allow it to operate the French concern. Daimler Benz says it will entertain offers from any potential partner. Matra and France Telecom are among the names being mentioned. If unsuccessful in its quest for an ally, Daimler Benz will decide next year whether or not to exercise its option to acquire a 51 percent interest.

Siemens-IBM-Toshiba Cooperation in 64-Mbit Chip Development

94WS0262C Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German 02 Mar 94 p 8

["Sampling the 64-Mbit Chip"]

[Text] *Scha. FRANKFURT.* The first, fully functional 64-Mbit memory chips, developed jointly by Siemens and IBM, have now been delivered to key customers. The sampling and examination of the chips should provide information on what and where changes are to be made. In its newsletter of January 1994, Siemens reported that following a successful pilot run, the technology will be converted into a production line, which will require investments of about one billion US dollars. Subsequent technological advances, such as the joint development by IBM, Siemens, and Toshiba of circuits having structural widths of 0.25 micrometers, will then be undertaken in Dresden as well. The market research company, Dataquest, predicts that by 1997, as many as 40 million 64-Mbit chips may have been sold on the world market.

Rhone-Poulenc, SNIA Merge Polyamide Activity

94WS0274B Paris L'USINE NOUVELLE in French 3 Mar 94 p 44

[Article by Jacqueline Mattei: "Advanced Plastics: Rhone-Poulenc and SNIA Become Partners"—first paragraph is L'USINE NOUVELLE introduction

[Text] Rhone-Poulenc and SNIA [expansion not given] (Fiat group) increase their collaboration on polyamides, a sector where their product lines complement each other.

After carpet fibers and yarns, followed by textile yarns, Rhone-Poulenc and the Italian company SNIA (Fiat group) are pooling their efforts in the field of advanced polyamide plastics. Their 50-50 subsidiary, Nyltech (800 people, sales of 1.2 billion francs [Fr]) will rank third in Europe, behind BASF [Baden Aniline and Soda Factory] and DuPont.

The European advanced plastics market represents 700,000 tons, and polyamides account for one half of that. Their characteristics (resistance to impact and high temperatures) favor their use in automobile (underhood parts) and electrical (circuit-breakers, switches) engineering. These are weighty sectors where large manufacturers—like Valeo (automobile equipment) or Legrand (electrical equipment)—look for suppliers of a size commensurate with theirs and offering products suitable for their specific applications.

The product lines of SNIA and Rhone-Poulenc complement each other (one offers polyamide 6, the other polyamide 66), which precisely will enable them to broaden their offers to automobile equipment manufacturers.

No Rationalization in Sight

The creation of a joint-venture with a bare-bones structure should also reduce overheads and improve the profitability of this activity, which suffered from the slump affecting the European automobile industry. On the other hand, no rationalization is expected for the time being.

The new entity will have four production plants: those of SNIA at Ceriano Laghetto, Italy, and Manchester, New Hampshire (United States); those of Rhone-Poulenc at Saint-Fons (Rhône) and in Taiwan. It will also inherit Longma, a joint-venture that the French group just set up in China, near Shanghai: a bridgehead for future expansion in Asia. It will also have two development centers, at Saint-Fons and at Freiburg (Germany).

The two companies have already formed two joint-ventures: Novalis for polyamide carpet fibers and yarns, and Nylstar for textile fibers. This third partnership proves that collaboration goes on satisfactorily. Another sign is Fiat's (symbolic) acquisition of an interest in Rhone-Poulenc.

Polyamides account for one half of the sales of Rhone-Poulenc's fibers and polymers branch (which amounted to Fr11.2 billion last year). The three partnerships cover about 50 percent of its polyamide activities.

The two companies, however, may not be able to carry their collaboration any further! Rhone-Poulenc also produces industrial yarns and is integrated upstream, which is not the case of SNIA.

Co-Chairmen Appointed for French-German Telecom Joint Venture

BR1003090694 Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 14 Feb 94 p20

[Unattributed Article: "France Telecom and Deutsche Bundespost Telekom Announce Appointment of Co-Chairmen for Joint Venture"]

[Text] France Telecom and Deutsche Bundespost Telekom have announced the appointment of Jean Arnould and Norbert Knoppik as co-Chairmen of the business communications joint-venture they announced in December last year.

The yet-to-be named joint-venture, to be headquartered in Brussels, will provide telecommunications services for multinational corporations, as well as companies and business users involved in international activities. It is expected to become operational in early 1995 and in the first year of operation the two partners expect it to generate some ECU1.5 billion in revenues. The venture will make approximately ECU 1,000 million in investments during the next five years and its workforce will number 4,000 persons.

Jean Arnould has worked at France Telecom since 1975 when he was head of Industrial Development within the International Affairs division. He was subsequently appointed Regional Director for Alsace, Lorraine, Nord Pas-de-Calais and Rhones-Alpes. Since 1993, he has been Deputy Director for the Southeast France Sector.

Dr. Knoppik joined DBT in 1990 as Head of the Satellite and International Cable Systems Division. He played a decisive role in the development of the Trans-Europe Line (TEL) cable system project and is currently Head of DBT's International Networks Division.

UK, Germany: Rolls Royce, MTU Form Research Joint Venture

BR1603150894 Brussels INNOVATION & TECHNOLOGY TRANSFER in English Feb 94 pp 21-22

[Unattributed article: "Advanced Testing for Advanced Materials"]

[Text] In a model of how European industries can exploit the expertise of the Joint Research Centre (JRC), the

UK's Rolls-Royce and Germany's Motoren und Turbinen Union have joined forces through the Third Framework Programme, using the JRC's Institute for Advanced Materials (IAM) as a subcontracting laboratory.

The international recession and defence cutbacks have intensified international competition in aeroengine manufacturing, which is divided between a small number of European and American firms. To remain competitive, Rolls-Royce is focusing on making engines as fuel-efficient and as cheap to maintain as possible. Motoren und Turbinen Union GmbH (MTU), which is Rolls-Royce's major partner on the upcoming Eurofighter's engines, faces similar challenges. Both see using advanced materials as essential to their future as hi-tech manufacturers.

Turbine Blades: Critical Components

In an aircraft engine, fuel and compressed air explode inside combustion chambers at high temperature and pressure. The resulting gases are ejected out the back, propelling the aircraft forward. However, as they leave the combustion chamber they also drive a set of turbine blades, which transfer energy to the front of the engine to compress incoming air.

The mechanical load, or stress, on these turbine blades varies enormously, and these stresses occur over a wide range of temperatures, with blade surface temperatures approaching to within a few hundred degrees of the material's melting point. Due to their extreme operating conditions, their importance to safety and the inexact understanding of their lifetime, the blades are regularly checked and replaced when any structural faults, such as microcracks, are detected.

Engine efficiency is proportional to the temperature inside the combustion chamber, so improving engine requires turbine blades which can withstand higher temperatures and whose lifetime is more exactly understood, reducing the need for maintenance checks. Blades must also be as light as possible, to keep engine weight to a minimum.

Industry Link—Up Through JRC

According to British materials scientist Andy Bennett, "Rolls-Royce had worked on isothermally testing potential turbine blade materials, where samples were stress-tested at one temperature. However we needed a thermo-mechanical fatigue, or TMF, testing laboratory, which would put the materials under similar conditions to those found in the engine itself. We decided to subcontract to an existing laboratory, and the IAM was the obvious choice—their resources, both human and technical, make them the best in Europe."

The IAM knew that MTU were also interested in this field, and put the companies in touch with one another. Together with Spanish modelling institute Centro de Estudios e Investigaciones Tecnicas de Guipuzcoa

(CEIT), they formed a project under the EC's Industrial Technologies and Advanced Materials Programme (BRITE/EURAM II), with the IAM as a subcontracting laboratory. Project BREU-0338, as it became, was launched in 1991 for four years, with Rolls-Royce as the prime partner.

Thermo-Mechanical Testing

A turbine blade consists of two main components: a metal core, or substrate is a single crystal of a "super alloy," while the coatings are composed of one or more elements which are easily oxidised, forming a protective oxide layer.

The IAM test equipment simulates the behaviour of the blade under its operational conditions in the laboratory, and observes the growth of any cracks. The sample is heated by electromagnetic induction, while the strain is produced by a hydraulic piston and measured with an extensometer. A load cell measures the stress applied by the piston.

In this way the researchers can measure the substrate-coating combination's actual stress-strain-temperature relationship, which is crucial to predicting the blade's lifetime.

According to IAM project scientist Dr. Johan Bressers, one of the most important and unique features of the system is that it investigates non-intrusively.

"We have developed a computer vision system, composed of an optical microscope coupled to a video camera, which monitors the sample for microcrack initiation and growth," he explains. "This system captures, digitises and displays images of the sample in real-time, and can either scan the entire surface or concentrate on a particular region with a magnification of up to 1000 times."

This enables the operators, if they wish, to find cracks as they appear and focus in on them for more detailed analysis. Usually, however, the scanning pattern is programmed in advance, so the equipment needs no supervision.

This system compares well to the "replica technique," which is traditionally used to monitor surface damage. The replica technique requires that the test be halted so that the surface of the sample can be replicated by means of an acetate film. This has to be done dozens of times for each test, a laborious, resource-intensive process which can also compromise the results.

After the test is completed the data is analysed to produce a crack growth history of the primary crack, the one which leads to total breakdown. At this stage the important data are when the cracks appeared, how fast they grew, and whether they joined together.

The sample is also analysed using electron microscopy and a scanning electron microprobe, which also provides

information on its micro-chemistry. This three-dimensional information on the crack helps to identify and analyse the mechanisms which affect crack growth, as well as the crucial question of why some cracks grow from the coating into the substrate and others do not.

Lifetime Prediction Model

Working together, Rolls-Royce and MTU identified two substrates and three coatings to be tested in this way. The IAM laboratory has already performed 55 of the 80 tests, and has also finished a literature survey of over 30 different models, selecting one for further development.

"The test data will form an invaluable database, giving us a feel for how changes in operating conditions, coating materials and other parameters affect blade performance," explains Mr. Bennett. "It will, for the first time, give us an understanding behind the data. CEIT's work has also been important. Previous models were very material-specific, but CEIT has focused attention on which phenomena and parameters are the most important. This should eventually lead to a general model which can be applied to a wider range of materials, because we will be working from a better understanding of the material mechanics."

The final goal is a lifetime prediction model, enabling the industrial partners to select better materials for new engines, although neither MTU nor Rolls-Royce expect the project to result in an 'off-the-shelf' product. "By giving us a good picture of the behaviour of these materials under these conditions, the project will make the first step towards a more general model," stresses MTU scientist Dr. Affeldt. "Our company laboratory will continue the work for our specific needs."

Rolls-Royce has similar plans, and may continue its collaboration with the IAM. "We found the IAM very focused to our engineering needs," Andy Bennett adds, "so in the future we may enter into a private arrangement where the IAM tests our more confidential materials, those closer to the edge of development."

The IAM has also launched several sub-projects within their own research programme to provide, as Dr. Bressers explains, "a better basis for the mechanistic understanding and the mechanism-informed modelling of blade lifetimes. These projects will help us prepare for contracts for manufacturers of land-based turbines, such as in power plants, as there's no reason why we cannot serve these industries as well."

The JRC in Brief

The Joint Research Centre is a European scientific and technical research centre established by the EC. The four research sites in Belgium, Germany, Italy and the Netherlands house eight institutes: The Central Bureau for Nuclear Measurements, The Institutes for Transuranium Elements, Advanced Materials, Systems Engineering and

Informatics, Safety Technology, Remote Sensing Applications and Prospective Technological Studies, and the Environment Institute.

France: Dassault Buys Controlling Interest in Military Circuit Firm

BR2502092194 Paris LA LETTRE DU GEFAS
in English 20 Jan 94 p2

[Unattributed article: "Dassault Electronique To Become Major Shareholder in SOREP S.A. Group"]

[Text] DASSAULT ELECTRONIQUE has concluded an agreement with the major shareholders of SOREP S.A. under which it will be taking over 2/3 of equity in SOREP S.A.

SOREP, located at Chateaubourg, in the vicinity of Rennes, specializes in the development and production of hybrid circuits and ASICs for military, civil and space applications as well as for telecommunications and oil prospecting. Since its founding in 1978, SOREP has been an important partner of DASSAULT ELECTRONIQUE in microelectronic activities.

In 1993, SOREP S.A. had a revenue of 101 million FF (period ending 31 August 1993). It is a 100-percent shareholder in the EDGETEK Co., 43 percent in ERULEC and 56 percent in SOREP Inc. in the U.S.A., in partnership with SCHLUMBERGER.

The SOREP Group as a whole generates an annual revenue of nearly 230 million FF and employs around 450 persons.

For the DASSAULT ELECTRONIQUE Group, this outside growth operation is the culmination of a long production partnership and complementary microelectronic action. The SOREP Group will keep its identity and independence and under this alliance will acquire new facilities to develop its own microelectronic service activities for the benefit of customers in France and other countries.

The DASSAULT ELECTRONIQUE acquisition, made in complete agreement with the management of SOREP, will become effective during the month of January 1994.

France: Aerospatiale, SAFT Merger for Thermal Batteries

BR0103134194 Paris LA TRIBUNE DESFOSES
in French 1 Mar 94 p 12

[Text] Aerospatiale and SAFT [Portable and Fixed Accumulator Company] have created the Aerospatiale-Batteries (ASB) Company, whose main activity will be the design, production, and marketing of thermal batteries, which are essential components of autonomous energy supply systems of tactical missiles in flight.

Anticipating an annual turnover of 80 million French francs, ASB, 71.8 percent of which is owned by Aerospatiale, will become the largest company in Europe and the second largest in the world in this sector, after the U.S. company Eagle Picher.

Thermal batteries are also used in aeronautics and space applications and in power supplies of security systems. Aerospatiale Espace et Defense has ordered a thermal battery from ASB for supplying power to a system designed to avoid all risks of collision between the Ariane 5 launcher and its strap-on boosters at the moment of separation.

CORPORATE STRATEGIES

France: Aerospatiale Receives Two-Billion-Franc State Aid

94WS0222B Paris LE MONDE in French 4 Feb 94
p 15

[Article entitled: "Aerospatiale Awarded Two Billion Francs [Fr] in State Aid"]

[Text] French defense and economic ministers announced on Wednesday, 2 February that state-owned Aerospatiale company will receive capital funding of Fr2 billion. Although initial discussions had centered around the figure of Fr3 billion, the aeronautics firm (60 percent owned by the state, 20 percent by Credit lyonnais, and 20 percent by a public holding company, SOGEP) said it was satisfied with the decision. "The state shareholder's decision will enable Aerospatiale to take full advantage of the market's gradual recovery, notably through such new programs as the Airbus A-330 and A-340," the ministers commented in a communique.

The aeronautics industry has been hard hit by the slump in sales, and the Fr2 billion in government funds will bring a much-needed injection of oxygen. In 1993, Aerospatiale faced "abominable" civil markets, "stable" military ones, and "fairly good" demand for space products and services, said its CEO Louis Gallois when he presented the group's results on 5 January. This forced the manufacturer to cut back employee hours and eliminate 1,145 jobs, including 500 in its Eurocopter subsidiary, in 1993. Aerospatiale's deficit reached Fr2.38 billion, and the company expects to break even again in 1995 at the latest.

The Fr2 billion in fresh capital should enable the company to pursue the reduction of its debt, which it trimmed from Fr16 to 13 billion over the last two years, and to increase its equity, which now totals Fr6 billion. The cash should also help Aerospatiale expand its programs, several of which—both civil and military—the manufacturer is now studying with its European partners. Examples include the Ariane 5 rocket, the Tiger NH-90 and C-120 helicopters, the ATR-82, the Airbus A-319, the proposed FLA military transport plane, and Airbus A-330-340 spinoffs. Aerospatiale announced in

January that it was considering allowing capital investments by outside partners, either this year or in 1995, provided that the state remained majority shareholder.

French Auto Makers Target Non-European Markets

94WS0226B Paris L'USINE NOUVELLE in French
27 Jan 94 p 29

[Article by Alain-Gabriel Verdevoye: "French Automobile Manufacturers Investing Outside of Europe"]

[Text] Peugeot and Citroen are deploying in Egypt, India, and China, where Renault will join them. Renault also has its sights set on Turkey and Argentina. But the Japanese are watching.

A few cable lengths distant from the Pyramids, Peugeot opened the doors of its Cairo plant to the press on 26 January, for the launching of its "made in Egypt" 405. More than 1,000 405's are to be assembled there this year, and 10,000 a year at full capacity, by an Egyptian-American joint venture that also assembles Jeeps. By 1995, Peugeot aims to capture some 25 percent of the Egyptian market for personal automobiles. Running close behind, Citroen will begin assembling its AX compacts in February, with their replacement, the ZX's, slated to follow shortly thereafter. Anticipated production: 20,000 units by 1998. Citroen's share of the local market is expected to match Peugeot's, at around 30 percent. Despite the fundamentalist threat, PSA [Peugeot SA] is banking on this small, growing market, still free of strong Japanese competition.

Markets Neglected by Japanese

The French automobile industry has also chosen to break new ground in China and India. Citroen plans to manufacture 150,000 ZX's a year beginning around mid-1995 in

two new plants in the center of China. The AX's replacement could be produced there. Meanwhile, a few ZX's are being assembled in temporary plant facilities. Some ten or so French suppliers are in the process of setting up installations there. Some 40 or more are expected to follow.

Peugeot is increasing the capacity of its Canton plant, with plans calling for a capacity of 50,000 vehicles by 1995. A basic agreement has been signed for the building of a second ultramodern plant capable of manufacturing 100,000 Peugeot 405 sedans annually by the year 2000. Renault, for its part, plans to start production of its Trafic minibus at Xiaogan, not far from the Citroen plant, around the end of this year. In India, Peugeot plans to produce 60,000 Peugeot 309 sedans annually, near Bombay, beginning around the end of 1994. Citroen is negotiating to assemble its C 15 commercial vehicles there.

Although the French manufacturers are exploring the promising new markets still being neglected by the Japanese, they are by no means forsaking their traditional bases. In Turkey, Oyak-Renault, a subsidiary 57-percent owned by Renault, has invested 2 billion francs[Fr] to modernize its Bursa plant and manufacture its R19. Another strategic region for the French is Argentina, and specifically from the standpoint of penetrating the Brazilian market. Renault plans to increase its non-European production by 16 to 17 percent in 1994. And Citroen is planning to double its non-European production. Nevertheless, the French automobile makers manufacture only a small proportion of their vehicles outside of the Old Continent: Renault 15 percent, versus 30 percent for Nissan outside of Japan. "We do not have funds of our own to spend several billions in risky operations," says Renault, "and we lack engineers and available marketers."

PRINCIPAL OPERATIONS ABROAD

Companies/Countries	Capital Stake in Local Assembler (percent)	Types of Vehicles Assembled	Production 1993 (units)	Share of Local Market (percent)
RENAULT				
SOUTH AMERICA				
Argentina	23	R9 - R11 - R12 - R19 - R21 - Trafic	95,000	26
Colombia	24	R9 - R21	12,000	9
Venezuela	-	R9 - R21 - R19 (start-up phase)	2,000	Insignificant
FAR EAST - INDIA				
China	45	Trafic	Start-up in 1994	-
Taiwan	-	R9 - R19 - Express - Twingo (in 1994)	7,500	6
MIDDLE EAST				
Turkey	57	R9 - R11 - R12 - R21 - R19 (in 1994)	132,000	30

PRINCIPAL OPERATIONS ABROAD (Continued)

Companies/Countries	Capital Stake in Local Assembler (percent)	Types of Vehicles Assembled	Production 1993 (units)	Share of Local Market (percent)
AFRICA				
Morocco	-	R4 - R5 - R9 - R19 - R21	6,500	45
PEUGEOT				
SOUTH AMERICA				
Argentina	-	405 - 504 - 505	45,000	12.5
FAR EAST - INDIA				
China	22	405 - 504 - 505	21,000	12
Taiwan	-	405	4,000	3
India	50	309	(Start-up in 1994)	-
MIDDLE EAST				
Egypt	-	405	Start-up in 1994	-
Iran	-	405 - 205(in 1994)	20,000	30
AFRICA				
Morocco	-	106 - 205 - 309 - 405 - 504 - 306 (in 1994)	3,500	25
Nigeria	40	504 - 505	9,000	35
CITROEN				
SOUTH AMERICA				
Uruguay	-	ZX - Xantia (in 1994)	3,000	3
FAR EAST - INDIA				
China	-	ZX	7,000	4
MIDDLE EAST				
Egypt	-	AX - ZX	Start-up in 1994	-
AFRICA				
Morocco	-	AX - ZX - C15	3,000	20

The three French automobile makers sold 513,000 cars outside of Europe in 1993. Sales volume is expected to increase significantly in the future, thanks to China, Egypt, Turkey, and Argentina.

Source: Peugeot - Renault - Citroen - L'USINE NOUVELLE

Netherlands: Fokker Reduces Production by 20 Percent

94WS0233A Paris LE MONDE in French 16 Feb 94 p 22

[Article by Christian Chartier: "Fokker Axes 1,900 Jobs, Cuts Production 20 Percent"]

[Text] Amsterdam—Citing "market decline" and "price erosion," Dutch airplane builder Fokker announced on Monday 14 February a new reorganization plan—the third in 2 years, and the most "dramatic."

The plan, which was expected as a follow-up to the resignation of the company president 2 weeks ago (see LE MONDE of 1 February), calls for a 20 percent drop in production, which is slated to fall from 50 to about 40 aircraft per year, and an almost proportionate cut in the number of employees.

Some 1,900 positions of the company's 10,500 positions will be eliminated (it had employed 12,800 as of December 1991), thus doubling the scope of initial personnel retrenchment plans for 1994. Assembly lines will suffer the largest number of cuts (1,400), but management is also taking hits. Some property disinvestments will follow, further reducing Fokker's overhead. Finally, the company is going to take a close, hard look at its contracts with suppliers. The big question is whether the Amsterdam builder will succeed in reducing its costs for the airframes provided by Deutsche Aerospace (DASA), currently at a price well above the world average: 37 percent higher in the case of the F-70, and 57 percent in the case of the F-100. The contract antedates DASA's takeover of Fokker but has never been amended, a fact that leads some Dutch journalists to speculate the company is being set up for "strangulation" by its "predator-savior." The airframe surcharge is responsible for all but a few million florins of the 450-million loss Fokker is expected to post for 1993.

But Fokker, like every other aviation builder, is buffeted by turbulent winds: The airlines, overequipped and locked in a price war, are not modernizing their fleets, and builders are intensifying the competition to hang onto market shares. Fokker does not expect real recovery before 1996, but says it is convinced it will weather the storm and keep its reputation for building innovative models.

France: CEA-Industrie Divests Itself of Partnerships

94WS0233B Paris LE MONDE in French 16 Feb 94
p 22

[Article by Caroline Monnot: "CEA-Industrie Disengages From Framatome, Oris, Sopha, and Cisi"]

[Text] CEA-Industrie is losing its vocation as an industrial group. Industry Minister Gerard Longuet set the tone almost as soon as he arrived at the ministry. Eight months later, the pace of divestment is accelerating. In the meantime, Philippe Rouvillois, administrator general of the Atomic Energy Commission, became head of CEA-I and proceeded to quash the grandiose dreams of Jean-Claude Hirel. Mr. Rouvillois confirmed the news officially in LES ECHOS on Monday 14 February.

Data processing services (Cisi) and medical technologies (Oris and Sopha Medical) will no longer be development axes for a CEA-I whose role henceforth is clearly to be nothing more than a portfolio company. "In the more or less short term, we envisage no longer having majority positions in those companies but retaining interests as a minority shareholder," says CEA's administrator general, evincing an uncanny comprehension of the wishes of his tutelary minister.

Cisi, whose "facilities management" division—which completely or partially administers computer and data processing systems for third parties—has already been transferred to a joint subsidiary in partnership with Bull, is far from lacking suitors of its own. And Sagem is keenly interested in the medical technologies.

But that still leaves the nuclear technologies and components divisions, which Mr. Rouvillois notes are "two major hubs." Concerning the former, CEA-I here again—under duress—has abjured even a minor role, except perhaps to offer representatives of the state some seats on the board of directors.

COGEMA [General Nuclear Materials Company], one of CEA-I's most important investments, escaped its orbit early last summer by linking up with Total, in a move the government fully approved. Mr. Rouvillois also currently is negotiating disengagement from Framatome in favor of the Alcatel-Alsthom group.

The proceeds from these multiple divestments could be used, in a best-case scenario, to help semiconductor

maker SGS-Thomson—of which CEA-I is a major shareholder—back to vigorous health and support its ambitious plans.

Thereby preserving a semblance of utility for a corporate structure which at the moment would appear to have no vocation.

Bull's CEO Sees Privatization Process Starting in 1994

94WS0241A Paris LE MONDE in French 19 Feb 94
p 19

[Article by Caroline Monnot: "Privatization of Bull Should Begin by End of Year"]

[Text] Timing is nearly always important. With 2 weeks to go before a decisive meeting with the European commission, Jean-Marie Descarpentries has decided to break his silence. On 1 March, Bull's new CEO is supposed to explain the recovery measures he envisages and convince European Commissioners who are both irritated and of course skeptical. At stake is an 8.6 billion [French] franc [Fr] recapitalization, decided last fall by the authorities, which touched a raw nerve in Brussels. Patently less than convinced by Paris's pledge that this would be the "very last" capital infusion, the Commission, which has been waiting for Bull's strategic plan since last July, has put a freeze on the second capital tranche, which would supplement the initial Fr4.5 billion released in December 1993.

At this point, a public relations campaign would seem imperative for Bull. Since mere protestations of good faith would be unavailing, Mr. Descarpentries went straight to the point in what was his first official meeting with the press since 17 February, when he was named for the job: Bull's privatization is to be launched sometime this year, he said. The head of the state-owned computer group also has a fairly clear idea who the group's shareholders will be 2 years down the road: Employees will own as much as 20 percent; three industrial ("and preferably financial") partners with prior experience in cooperative ventures with Bull will each own 15 percent; the state—"a fabulous shareholder," notes Mr. Descarpentries—will keep as much as a 15 percent interest; and the rest will go on the open market.

Privatization would have to be implemented in several phases. For Jean-Marie Descarpentries, the entry of industrial partners is especially opportune because it will be accompanied by a capital infusion, to be effected once the enterprise's balance sheet is rectified. Nevertheless, in the next few months, and as an earnest of its good faith vis-a-vis Brussels, "up to 10 percent of the group's stock" will be made available to employees, and "between 10 and 20 percent" to the first industrial partner. Bull's CEO broadly hinted that Japan's NEC, a longtime partner of Bull—and one that closely followed the state-owned group's recapitalization last fall—strikes him as a solid candidate. He also wants France Telecom,

which already owns a 17 percent share in the state-owned computer group, to keep its place at the table. According to Mr. Descarpentries, it is time for the two enterprises, which in the past have had an "almost neurotic" relationship, to turn over a new leaf. "There are many joint projects for us to develop." The third candidate might be Hewlett Packard (United States), with which Bull says it is already discussing various industrial plans. But IBM, which signed a financial and industrial partnership accord with Bull over 2 years ago, is clearly being pushed out of the picture. In private, Mr. Descarpentries is rather harshly critical of that partnership. Also, the Bull CEO mentioned a possible merger of Zenith Data Systems and Packard Bell, with stock in the new entity to be listed on the Paris Exchange.

France: Renault Privatization Considered

94WS0241B Paris LE MONDE in French 21 Feb 94
p 13

[Article: "AGF and Renault on Fast Track"]

[Text] Are AGF and Renault next in line for privatization? That was the distinct impression left by Economic Affairs Minister Edmond Alphandery on Friday 18 February when he appeared as a guest on "Forum RMC-L'EXPRESS": It's clear the government has no intention of sitting on its hands. "After UAP, which is already in the pipeline, we will announce other privatization projects in the weeks to come," he indicated. Commenting on the separation of Renault and Volvo (LE MONDE of 19 February), the minister added that "the way was now open for privatization of Renault." "AGF and Renault are definite candidates," confirmed Mr. Alphandery, explaining that the government "likes to keep several irons in the fire."

No reference was made during the program to Bull Group, the computer manufacturer whose new CEO, Jean-Marie Descarpentries, had announced the previous day plans to open the group's stock to the public this year. A visibly irritated Bercy [i.e. the Economic Affairs Ministry] issued an official clarification in a communique Friday evening. "No decision has yet been made" on the timetable or modalities for [privatization of] the computer builder, the ministry said. The privatization commission has not yet considered the Bull dossier, it also noted.

Germany: Struggling DASA Pins Hopes on New Sales, Military Transport Program

94WS0279A Duesseldorf HANDELSBLATT in German
28 Feb 94 p 11

[Article by Wieland Schmitz: "DASA Hopes for a Successor to the Transall Transport: Mehdorn Sees Obstacles To Space Cooperation With Boeing: Support Policy Must Be Restructured"]

[Text] HANDELSBLATT, 28 February 1994 MUNICH. The European, and especially the German, air and space

industry has experienced a crisis year. Even the near future does not look much better. International airlines cancel about as many aircraft contracts as they award. Military aircraft production is suffering drastically reduced procurement, and the governments in the United States and Japan are even more concerned about these industries than is the German government.

The consequences for DASA (Deutsche Aerospace AG), under whose roof almost 70% of the German aviation and space industry is concentrated, are now known. By 1996, DASA will shut down six plants; it will give up three more sites and reduce its work staff by another 10,300, down to a total of 70,000 remaining positions. But even these drastic measures will only stabilize the situation for Daimler's subsidiary under the most optimistic premises.

In a conversation with Handelsblatt, Hartmut Mehdorn, DASA's chairman for the aviation sector, said: "The measures we have announced will only suffice if there is a positive decision for the construction of the European fighter aircraft, if our remaining development departments continue with the FLA (future large aircraft) project, and if we can build 120 to 130 Airbuses a year. If any one of these premises falls through, we shall have other problems to confront and for which we will require help."

A further setback looms for the already markedly reduced production of the Airbus. The only current major, hotly contested contract for commercial aircraft—Saudi Arabia's \$6 billion U.S. dollar order for some 50 to 60 aircraft—will, in the opinion of experts in the aviation field, go exclusively to U.S. producers. As a result, production by the Airbus partners (DASA, Aerospatiale, British Aerospace, Casa) will sink still further because part of that contract had already been included in their plans—over optimistically it now seems. But the Europeans have still not abandoned all hope because President Clinton's (who personally fought for this business) announcement that Boeing and McDonnell-Douglas had won the entire contract has not yet been officially confirmed. As Mehdorn puts it, "the door is still not closed."

Cost of the Jaeger 90 Can Provoke New Arguments

More hopeful is the belief that Bonn will make a positive procurement decision for the EFA fighter aircraft (Jaeger 90). Since DASA's public announcement of a substantial reduction in its work force, there have been an increasing number of signals from Bonn indicating that no foreign-built competitor aircraft will be purchased. However, the costs involved in the construction of the high-tech Jaeger 90 could well provoke new discussions. Mehdorn said: "On the basis of 1988 cost estimates, the EFA will cost DM57.8 million. That amount represents the 'fly-away' cost for which the industry is responsible and which really cannot change very much. We are not responsible for the higher system costs, which include the logistics expenditures of the customer over the entire service

life." In DASA's opinion, there is considerable room for savings in the system costs, which have been put at about DM130 million. The cost negotiations between Bonn and the EFA Consortium, set for 1995, should provide fireworks both because of the inflation-driven cost increases since 1988 as well as because of the greater costs resulting from technical and bureaucratic delays.

If the decision is positive for EFA, then the production capacities can—to a considerable degree—be fully utilized. That, however, does not hold for the development departments. Consequently, Mehdorn is relying on the "future large aircraft," a tactical military transport successor to the aging German-French Transall aircraft. This new four-engine heavy cargo aircraft (payload 25 tons), which will also be offered for commercial use, must, in the opinion of DASA planners in Germany and France, be ready by the year 2002. This means that the program has to be approved in 1994.

Mehdorn wants to win Bonn over to the FLA and to this end proposes a revolutionary way for the military to procure it. "We want this to be different from the EFA process. We have proposed to make this aircraft efficient and inexpensive from the industrial point of view." We can do this if the governments involved dispense with their conventional comprehensive, detailed technical specifications and merely prescribe "what the aircraft must be able to do." DASA and Aerospatiale, as well as partners who join in the venture later, will develop, build, and finance "structures as in the Airbus project, using available Airbus components." The aid that would still be required from the government could then be limited to DM25 million yearly, a credit pledge, and a guaranteed procurement.

However, Mehdorn does not believe that even a successor to the Transall will ensure the continued existence of a German aviation industrial capability in the long term. To do that, the entire financial support policy would have to be restructured and intensified. He wants a yearly budget of at least DM300 million for "technology projects." In this way, Mehdorn believes, the aviation and space industry could retain its capability and participate in a market, which is estimated to reach a volume of DM800 billion in the next 20 years. Moreover, new aircraft programs would have to be indirectly subsidized, as in the United States, because direct development subsidies would be greatly reduced. "To match the United States in these matters, we need an advance development program borne entirely by the government," DASA's chairman asserts, estimating that U.S. subsidies via NASA in 1993 and 94 amounted to about \$1 billion U.S. dollars annually and another \$1.6 billion dollars annually via the Air Force.

Although no specific amounts of financial subsidies are available in the case of Japan, the upcoming competitor against the European aviation and space industry, DASA believes that the accumulation of patents identified

indicate that aviation and space is Japan's "next strategic attack point." In order to meet this attack, Mehdorn asserts that, in addition to financial outlays, Germany needs an "integrated aviation support structure, in which industry, the universities, the major research institutes, the DLR (German Aerospace Research Institute), and the various responsible ministries all participate."

The Americans, especially Boeing, the world's leading producer of commercial aircraft, which is already cooperating closely with Japanese companies, are serving as midwives at the birth of the Japanese aviation and space industry. So as not to have that developing alliance become a competitor against the European Airbus partners right from its inception, the head of DASA, Juergen Schrempf, entered into an agreement with Boeing to establish a joint working group, consisting of the Airbus partners and Boeing, to make a feasibility study for one of the most ambitious aircraft projects ever—a large 500 to 600-seat aircraft. The feasibility study, which was ready in March, concluded that "owing to the enormously high costs of development, estimated at \$10-12 billion U.S. dollars, a project of this nature could only be undertaken on a worldwide basis. It is still problematical as to whether joint trans-Atlantic measures will follow from that conclusion." Mehdorn concludes: "Just as there are opponents in this country to cooperation with Boeing, there are opponents to cooperation with Europe at Boeing."

France: Alcatel Restructures Radio, Space, Defense Activities

*BR1103110594 Chichester ITI INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE
in English 21 Feb 94 p1*

[Unattributed article: "France—Alcatel To Reorganise Radio Communications Activities"]

[Text] On March 1st, Alcatel's activities in the fields of traditional radio communications and mobile, space and defence, presently part of the Alcatel Radio Space & Defense product group, will adopt a new organisational structure. Three groups will be created:

1. Alcatel Mobile Communications: This group will cover the whole of mobile communications - the fixed networks utilising cellular technology, radio systems and also GSM terminals, PMR and DECT. It will be directly responsible for the corresponding activities in Alcatel companies in Belgium, France, Germany, Italy and Spain. The group will be headed by Peter Radley as President, and Luc Vigneron as Executive Vice President.

2. Alcatel Radio Transmission Systems: This group will cover all microwave and earth station activities. It will be directly responsible for the corresponding activities in Alcatel companies in France, Germany, Italy, North America and Spain. Domenico Ferraro has been appointed President of the group, while Christian Pinon

has been appointed Executive Vice President. In addition, Mr. Ferraro becomes President of a new holding company which will control all Alcatel's Italian activities with the exception of cables.

3. Alcatel Space & Defense: This group will cover all the activities of Alcatel in space communications and observation systems, scientific satellites, as well as C3I, navajds and defence communications systems. It will co-ordinate the corresponding activities of the Alcatel subsidiaries in Belgium, Denmark, France, Germany, Italy, Norway, Spain, Switzerland and Taiwan. Jean-Claude Husson has been appointed President of the group.

Jacques Imbert, formerly President of Alcatel Radio Space & Defense, has been appointed Executive Vice President-Strategy and Development of Alcatel Alsthom. He will also maintain his present responsibilities for the coordination of defence activities for the Alcatel Alsthom group. Jean Guibourg, formerly Executive Vice President of Alcatel Radio Space & Defense, has been appointed Director of Alcatel Alsthom headquarters.

France: Dassault 1993 Figures Show Return to Profitability

BR1103112994 Paris LA LETTRE DU GIFAS
in English 10 Feb 94 p2

[Unattributed article: "Dassault Eletronique: Report for 1993"]

[Text] In 1993, Dassault Electronique Group had a consolidated revenue of 3.9 billion francs, as per prognostics, slightly above the 1992 level. Orders represented 5.2 billion francs, a more than 25-percent growth over the preceding year. These excellent results reflect export orders for equipment to be medium term delivered. As of 31 December 1993, order books also showed significant growth, having for the first time reached 9 billion francs (not including price revisions). Turnover of the Dassault Electronique parent firm was 2,770 billion francs in 1993, practically the same as in 1992 (2,791 billion francs) for booked orders worth 4,145 billion francs, a 40-percent increase over 1992 (2,970 billion francs). During the October 1993 meeting of the Board of Administration, the Chairman, Bertrand Daugny announced that the Group had returned to profitability in 1993.

France: SGS-Thomson Number Two Looks Ahead With Confidence

BR2502091194 Paris ELECTRONIQUE
INTERNATIONAL HEBDO in French 17 Feb 94 p 8

[Interview with SGS-Thomson "number two" Piero Martinotti by Jean-Pierre Della Mussia; place, date not given: "Martinotti: 'SGS-Thomson Will Now Remain Profitable'"—first paragraph is ELECTRONIQUE INTERNATIONAL HEBDO introduction]

[Text] SGS-Thomson did not win shares in the semiconductor market in 1993 because it is not present in the DRAM [dynamic random access memory] or 486 [processor] segments, which experienced the strongest growth. However, it outperformed the rest of the market in most of the sectors in which it is active. Piero Martinotti, SGS-Thomson's "number two," considers that his company will continue to make progress.

[Della Mussia] In 1992, you covered 2.7 percent of the world market. You also covered 2.7 percent in 1993. Are you still aiming to cover 5 percent of the world market? How do you hope to achieve that?

[Martinotti] Indeed, 5 percent is a limit above which a general semiconductor company can obtain structural stability. In my opinion, this percentage can even fall to 4 percent, since our Japanese competitors now have to generate some cash flow, which was not previously the case; they therefore have fewer financial options. We are concerned with maintaining our momentum: The semiconductor market is set to double every seven years; our challenge is to try and double our revenues every five years while accepting that there will be no capital increases, that is to say relying solely on our current strengths and existing product catalogue. However, our shareholders could decide on faster growth by increasing the company capital.

I reckon that one-third of our 1993 profits were due to a favorable economic climate and two-thirds can be put down to internal action. Now, even if the market goes into decline, we will remain profitable in all our product lines and continue to win shares in the market. Moreover, our debt/equity ratio of just 0.285 gives a certain financial flexibility. Once again, however, it is up to our shareholders to decide whether we should grow faster, with possible takeovers of other companies. For example, this would be the case if we decided to manufacture 486 circuits.

The favorable economic situation means that we envisage making shareholders' equity investments in the region of \$550 million this year. If there were a crisis, we would scale down our ambitions to maintain the cash-flow.

[Della Mussia] You still rank in the same position among the world's semiconductor companies. Why?

[Martinotti] NS and Philips are ahead of us, but the gap is closing. Be patient.

[Della Mussia] SGS-Thomson still has an enormous number of factories in the world. Is that not a handicap?

[Martinotti] If we were starting again from scratch, we would doubtless shed four factories. However, we have to live in a real world. That is why we are reinvesting in Rennes, simply because, at the current time, Rennes is very profitable and will most likely remain profitable for another four or five years. At the moment we are

reinvesting, too, in Rousset for five-inch chip manufacture in the area made available by the closure of the four-inch production line, in particular with an EEPROM [electrically erasable programmable read-only memory] technology for microcontrollers that we will transfer from Agrate.

[Della Mussia] Will the Mitsubishi-Hitachi agreement on flash memory influence your strategy in this area?

[Martinotti] Our strategy with regard to Mitsubishi remains unchanged, even if our developments were delayed by a few months and the Hitachi agreement has complicated our relations slightly. We have decided on the NOR technique, but we do have access to the DINOR and AND techniques. We will make our choice in due course. In any case, we have already defined with Mitsubishi the products that we want to manufacture together and we are currently making our technologies compatible. [Martinotti ends]

SGS Bets on the Future—Investment in 1999

\$480 million

85 percent up over 1992

23 percent of sales

8 percent more than the industry average

World number nine (in dollars)

Research and Development in 1999

\$300 million

20 percent up over 1992

15 percent of sales

2 percent more than the industry average

World number 10 (in dollars)

327 patents registered

France: CELERG Becomes Europe's Largest Missile Motor Manufacturer

BR2502091894 Paris LA LETTRE DU GIFAS
in English 27 Jan 94

[Unattributed article: "Aerospatiale and SNPE Expand Scope of CELERG"]

[Text] In 1992, AEROSPATIALE and SNPE formed a joint firm known as the CELERG Co. specialized in motors for tactical missiles and rockets. In its initial form, CELERG centralized all the conceptional and marketing facilities of the two parent firms. In a recently signed memorandum of understanding, AEROSPATIALE and SNPE have added production and fabrication facilities to their joint venture. These facilities will

include the production of propellants and engine integration. They will be located at Saint-Medard-en-Jalles (Gironde) and Angoulême for SNPE and at Bourges for AEROSPATIALE.

CELERG is now the leading European manufacturer of power plants for missiles and tactical weapons systems, with a size comparable to that of its major American competitors.

AEROSPATIALE and SNPE thereby reinforce their partnership while enhancing the position of CELERG, a subsidiary to which additional French or foreign partners will be added to obtain a truly significant dimension in Europe, benefiting by important commercial and technical synergies.

Germany: DASA Works Council Presents Plan To Avoid Staff Layoffs

BR0103125094 Munich SUEDEDEUTSCHE ZEITUNG
in German 5-6 Feb 94 p 31

The group works council of Munich-based German Aerospace AG (DASA), which is threatened with mass layoffs, has called for an emergency state program in favor of regions and locations particularly affected. At a two-day meeting in Bonn also attended by Bundestag deputies and members of the Federal Government, the workers' representatives also appealed for measures that would safeguard the German aerospace industry in the long term. Speaking with journalists on Friday, group works council chairman Alois Schwarz called for a program funded to the tune of 2 or 3 billion German marks [DM] as a "start to medium- to long-term planning."

The management of Daimler group-owned DASA had announced, last fall, that at least 16,000 jobs would be lost and six factories closed. This, claims a group works council statement, would jeopardize the very being of the DASA group. The incomparably high innovation and investment outlay in this sector could not be met by the industry alone; targeted funding by the Federal Government was needed. The state had to maintain control over production for military purposes; the laws of the market economy should not be the only guiding principle of business; parliament and the government should create the premises that would at least maintain the German aerospace industry at its current level. From the political point of view, the technical expertise DASA represented was just as worth preserving as the coal, steel, and shipbuilding industries or agriculture.

The group works council summarized its long-term demands under seven heads:

1. Financing of a research and development technology program, for example for new materials for use in aircraft, helicopters, and spacecraft. Schwarz criticized the fact that, although a new fiber-reinforced composite

had led to the development of a new automobile steering wheel column, the automobile industry had not adopted the new material;

2. Support for passenger aircraft construction;
3. Definition of projects and programs for unmanned defense systems; and
4. Interceptors and transport aircraft. The Luftwaffe should state its requirements for helicopters and other transport aircraft. Oskar Pauli (Dornier, Friedrichshafen), seconded by the CDU/CSU [Christian Democratic Union/Christian Social Union] deputy Bundestag floor leader, Kurt Faltlhauser (CDU), called for the decision on the F-90 to be brought forward and taken before the end of 1994: If the decision were not taken for another two years, DM75 million would be required just to preserve capacity;
5. Close coordination of the Bundeswehr's maintenance and logistics work with the industry;
6. Improvement of German companies' capacity for international collaboration within the EU; and
7. A diversification and conversion (swords to plowshares) funding program; the funds available under EU programs should be used and not be allowed to lapse.

Schwarz criticized the fact that, although up to 10 conversion products had already been available from MBB [Messerschmidt-Boelkow-Blohm] in Ottobrunn and Garching in the eighties, the management had dropped these lines when MBB had been taken over by Daimler-Benz in 1988, pending the formation of the new group. The result had been a stagnation in the conversion effort. The products developed at that time were no longer salable, said Schwarz, criticizing the company management's poor judgment: "There is a glut on the market." Schwarz said that only entirely new products, in civil aviation, for instance, held out prospects of success, but this would require massive financial aid both from the group's parent company, Daimler, and from the state.

Pauli expressed satisfaction at the response of the politicians attending the conference; in addition to Faltlhauser, these included the Federal Government aerospace coordinator, Reinhard Goehner (CDU), and SPD [Social Democratic Party of Germany] floor leader Hans-Ulrich Klose. "What we have seen today is a great coalition in favor of research and technology," said Pauli, summing up the views expressed by the politicians. A step forward had been taken. It would have to be followed up firmly over the following weeks and months. Pauli criticized the planned DM1.25-billion cut in the defense budget and the DM250-million cut in the research budget. When savings had to be made, the aerospace industry was always first in line.

Dutch Biotech Company Reorganizes R&D

BR0203151294 Rijswijk BIONIEUWS in Dutch
15 Jan 94 p 1

[Article signed RBE: "Gist Incorporating R&D in Divisions"]

[Text] Since 1 January, Gist-brocades, a biotechnology company from Delft, has been operating with a thoroughly decentralized research unit. Most of the R&D has been incorporated in the five departments or business units. This makes the divisions' R&D responsibility complete. While the initial goal of decentralization was to guide research and the use of its results in the proper direction, it now also deals with the management of the researchers themselves.

This step can be regarded as the final phase of the process which was initiated in 1990 to make R&D more market-oriented. From that moment on, it was no longer the R&D organization that determined which research had to be done, but the departments. The technology manager was assigned the important role of watching the long-term developments of customers and competitors, and deciding which developments were interesting for the departments involved. In cooperation with the department's management, he determined the R&D policy.

R&D was organized by project. The researcher was given clearly outlined objectives, but continued to work within the central R&D organization. R&D became the strategic partner of the departments. Thinking along with the customers was essential.

Cut and Paste

Throughout 1993, however, it became clear that efficiency still needed to be improved. Corporate strategist Joop Roels says that this is mainly due to external circumstances: "Fierce technological competition constantly forces you to seize upon new developments very fast, to take immediate advantage of market opportunities, and to work cheaper. As it turned out, creating an organization which was even more efficient than before, was only possible by incorporating research people and resources in the departments wherever possible. In genetic engineering terms, this means cuts in R&D, and then pasting in the divisions." This reshuffle of over 500 researchers did not involve any layoffs.

The reorganization, which was carried out within three months, resulted in five units with an integrated research activity: Industrial Pharmaceutical Products Division (IPPD, penicillins and cephalosporins); Bakery Ingredients Division (BID, yeast and other bakery ingredients); Business Unit Savory Ingredients (BUSI, yeast extracts and other flavoring substances); Bio-Specialties Division (BSD, industrial enzymes); Corporate New Business Development (CNBD, development of new products, which fall outside the four above-mentioned core activities).

The part of the research which could not be decentralized for reasons of efficiency, for instance the test plants and analysis, is incorporated in a central technical cluster, which supports the divisions.

Expansion

According to Roels, the reorganization of R&D has contributed to giving Gist-brocades a good position for the company's next evolutionary phase, which is expansion. "The departments are now well positioned. The company has clearly opted for those areas, in which it is strong or thinks it is strong. This knowledge makes it possible for the company to gradually expand its business. We will shun neither major acquisitions nor partnerships, whenever the opportunity arises." Roels advocates a balance between inventing and purchasing, when it comes to acquiring the required technology as effectively as possible. "Why bother to learn the technology yourself, if good technology is available outside the company?"

EUROPE-ASIA RELATIONS

UK: Honda Announces Complete Withdrawal From Rover

93P60168 Paris LE MONDE in French 22 Feb 94 p 20

[Text] In a 21 February announcement in Tokyo, Honda confirmed its intention to withdraw the 20 percent share it held in Rover's capital. This announcement has been

made during the discussions begun on the same morning between BMW's CEO Bernd Pischetsrieder and his Honda counterpart Nibuhiko Kawamoto. Since the announcement of the sale by Rover to BMW of the 80 percent previously owned by Airbus, Honda did not hide its dissatisfaction. The Japanese manufacturer, Rover's partner since 1979, considers itself visibly betrayed. Therefore, the announcement on Monday, 21 February, expressing the company's intention to withdraw from Rover's capital, did not come as a surprise. The consequences of this position industrially and commercially may be quite risky, since Honda has not been just a financial partner (to Rover) but an industrial ally as well. Thus, this collaboration has to be renegotiated also. In the future—the announcement stated—we will reexamine the diverse technical contracts with Rover. Until now, Honda's policies in Europe have been based on this collaboration with Rover. In the future, we intend to set up independent production units (solely) through our own resources. Up to the present, Rover has been producing for Honda some vehicles (the Concerto model in particular) intended for the European market, while Honda had conceived several models of the Rover series, the Rover 200, 400, 800, and the new Rover 600. Beyond this, the Japanese manufacturer had supplied the British company with several strategic components, such as gear boxes. The cooperation extended also to commercial interests; in Japan Honda has been selling the 4x4 Land Rover Discovery model under its own trade mark. The renegotiation of agreements existing between the two firms could profoundly disrupt Rover's production.

BULK RATE
U.S. POSTAGE
PAID
PERMIT NO. 352
MERRIFIELD, VA.

This is a U.S. Government publication. Its contents in no way represent the policies, views, or attitudes of the U.S. Government. Users of this publication may cite FBIS or JPRS provided they do so in a manner clearly identifying them as the secondary source.

Foreign Broadcast Information Service (FBIS) and Joint Publications Research Service (JPRS) publications contain political, military, economic, environmental, and sociological news, commentary, and other information, as well as scientific and technical data and reports. All information has been obtained from foreign radio and television broadcasts, news agency transmissions, newspapers, books, and periodicals. Items generally are processed from the first or best available sources. It should not be inferred that they have been disseminated only in the medium, in the language, or to the area indicated. Items from foreign language sources are translated; those from English-language sources are transcribed. Except for excluding certain diacritics, FBIS renders personal names and place-names in accordance with the romanization systems approved for U.S. Government publications by the U.S. Board of Geographic Names.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by FBIS/JPRS. Processing indicators such as [Text] or [Excerpts] in the first line of each item indicate how the information was processed from the original. Unfamiliar names rendered phonetically are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear from the original source but have been supplied as appropriate to the context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by the source. Passages in boldface or italics are as published.

SUBSCRIPTION/PROCUREMENT INFORMATION

The FBIS DAILY REPORT contains current news and information and is published Monday through Friday in eight volumes: China, East Europe, Central Eurasia, East Asia, Near East & South Asia, Sub-Saharan Africa, Latin America, and West Europe. Supplements to the DAILY REPORTs may also be available periodically and will be distributed to regular DAILY REPORT subscribers. JPRS publications, which include approximately 50 regional, worldwide, and topical reports, generally contain less time-sensitive information and are published periodically.

Current DAILY REPORTs and JPRS publications are listed in *Government Reports Announcements* issued semimonthly by the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 and the *Monthly Catalog of U.S. Government Publications* issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The public may subscribe to either hardcover or microfiche versions of the DAILY REPORTs and JPRS publications through NTIS at the above address or by calling (703) 487-4630. Subscription rates will be

provided by NTIS upon request. Subscriptions are available outside the United States from NTIS or appointed foreign dealers. New subscribers should expect a 30-day delay in receipt of the first issue.

U.S. Government offices may obtain subscriptions to the DAILY REPORTs or JPRS publications (hardcover or microfiche) at no charge through their sponsoring organizations. For additional information or assistance, call FBIS, (202) 338-6735, or write to P.O. Box 2604, Washington, D.C. 20013. Department of Defense consumers are required to submit requests through appropriate command validation channels to DIA, RTS-2C, Washington, D.C. 20301. (Telephone: (202) 373-3771, Autovon: 243-3771.)

Back issues or single copies of the DAILY REPORTs and JPRS publications are not available. Both the DAILY REPORTs and the JPRS publications are on file for public reference at the Library of Congress and at many Federal Depository Libraries. Reference copies may also be seen at many public and university libraries throughout the United States.

END OF

FICHE

DATE FILMED

15 JUNE 1994